THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET, LONDON

[ONE HUNDRED AND SIXTY-EIGHT PAGES.]

TELEPHONE NUMBER—5366 GERRARD

No. XVIII. OF VOL. I., 1906. No. 4314. Vol. CLXX.

LONDON, SATURDAY, MAY 5, 1906.

PRICE 7d.; POST FREE, 7½d. [Pp. 120+48.

J. & A. CHURCHILL'S NEW BOOKS.

A MANUAL of MIDWIFERY. By T. W. EDEN, M.D., C.M., F.R.C.P. About 300 Illustrations. [Nearly ready.

PRESERVATIVES in FOOD and FOOD EXAMINATION. By J. C. THRESH, M.D., and A. E. PORTER, M.D. 14s. net. [Nearly ready.

PATHOLOGY, GENERAL and SPECIAL. By R. TANNER HAWLETT, M.D., F.R.C.P., D.P.H. 98 Plates. 10s. 6d. net.

HEATH'S MINOR SURGERY and BANDAGING. 13th edition. By BILTON POLLARD, F.R.C.S. 192 Illustrations. 6s. net.

CLINICAL and APPLIED ANATOMY. By C. H. BOX, M.D., F.R.C.P., F.R.C.S., and W. M. ECCLES, M.S., F.R.C.S. 48 Plates. 12s. 6d. net.

CHAVASSE'S ADVICE to a MOTHER. 16th edition. By T. D. LISTER, M.D. 2s. 6d.

URIC ACID, an EPITOME of the SUBJECT. By A. HAIG, M.D., F.R.C.P. Second Edition. 2s. 6d. net.

ON PHYSICAL TRAINING in SCHOOLS. By W. P. HERRINGHAM, Physician at St. Bartholomew's Hospital. And

THE INFLUENCE on NATIONAL LIFE of MILITARY TRAINING in SCHOOLS. By T. C. HORSFALL. Two Addresses delivered before the Med. Officers of Schs. Assoc. 1s.

THE PHARMACOPŒIA of the EVELINA HOSPITAL for SICK CHILDREN. Third Edition. 1s. 6d. net.

London: J. & A. Churchill, 7, Great Marlborough-street.

PRACTICAL PRIVATE and PERSONAL INSTRUCTION in SUBJECTIVE SIGHT TESTING free to Medical Men by Mr. F. DAVIDSON, at his rooms, 140, Great Portland-street, London, W. Communication invited.—MEDICAL OPINIONS: "It has increased both my reputation and my practice." "I wrote to Dr. — advising him to run up to London and take a lesson or two from you." "Your instructions are splendid." "You are at liberty to mention my name." "I am simply delighted." "Once your method is grasped it lessens the time necessary over any given case of astigmatism by two-thirds." "I thank you for your ready help."—Study and Practice of Retinoscopy, with a Model Eye, by Mr. Percy Dunn. Price, including Model Eye, 17 Discs showing typical conditions of the Retina, and various lenses for Retinoscopic Practice, £1 5s. "Sight Testing for the General Practitioner," by F. Davidson, price 2s. 6d.

Direct Illumination of the Eye made easy by means of simple Electrical Appliance, complete with cord and battery, 20s.

F. Davidson & Co., 140, Great Portland-street, London, W.

THE REST CURE. (In preparation.)

HEADACHE. Price 12s. 6d.

FLUSHING and MORBID BLUSHING. 10s. 6d.

By HARRY CAMPBELL, M.D., F.R.C.P., Physician, North-West London Hospital, and to the Welbeck-street Hospital for Diseases of the Nervous System.

Published by H. K. Lewis, 136, Gower-street, W.C.

Just Published. Pp. viii.+182, Illustrated. Price 6s. net.

GASTRIC SURGERY. Being the Hunterian Lectures for 1906.

By HERBERT J. PATERSON, M.A., M.B., B.C. Cantab., F.R.C.S., Hunterian Professor of Surgery, Royal College of Surgeons.

"A notable addition to our knowledge of the surgery of the stomach."—THE LANCET (leading article).

Baillière, Tindall, & Cox, 8, Henrietta-street, Covent Garden, London.

Just Published. Pp. x.+193, with 27 Illustrations. Price 5s. net.

DISEASES of the RECTUM, being a Short Account of the Commoner Diseases affecting the Ano-Rectal Region.

By F. VICTOR MILWARD, M.B., B.C. Cantab., F.R.C.S. Eng.

Birmingham: Cornish Bros., Ltd., New Street.

EDINBURGH MEDICAL JOURNAL.

Edited by ALEXIS THOMSON, M.D., F.R.C.S. Ed., and HARVEY LITTLEJOHN, M.D., F.R.C.S. Ed.

CONTENTS FOR MAY.

EDITORIAL:—Pulmonary Phthisis: An Advance—Responsibilities of General Practice—George Buchanan—Graduates in Law—A More Energetic Treatment of the Insane.

M'BRIDE, P., M.D., F.R.C.P. Ed.: Deafness due to Hysteria and Allied Conditions.

MCARDLE, JOHN S., F.R.C.S.I.: The Radical Cure of Inguinal Hernia. (Plates XII. and XIII.)

MOYNIHAN, B. G. A., F.R.C.S.: On the Violation of Courvoisier's Law.

DUNLOP, JAMES C., M.D., F.R.C.P. Ed.: Occupation Mortalities

STEWART, PURVES, M.A., M.D., M.R.C.P.: The Clinical Significance of the Cerebro-Spinal Fluid.

CALLENDER, D. A., M.B.: Intra-Peritoneal Hæmorrhage occurring during Labour.

Reviews of British and Foreign Literature. Notes on Books. Recent Advances in Medical Science. Reports of the Medical Societies. Analytical Reports.

Subscription, One Guinea per annum (in advance), post free. For the Colonies and Abroad, Twenty-four Shillings. Single Numbers, Two Shillings each. Young J. Pentland.

Edinburgh: Teviot-place. London: 33, West Smithfield.

H. K. LEWIS'S CIRCULATING LIBRARY.

See page 6.

By W. ARBUTHNOT LANE, M.S.

CLEFT PALATE and HARE LIP.

New Edition, in large clear type, demy 4to. 5s.

"Mr. Lane makes out a clear case for early and almost immediate operation. To sum up: Mr. Lane has absolutely proved his contention, and rendered it quite clear, that early operation is the right course on every ground, developmental and otherwise; and, further, that delay in performing staphyiorrhaphy until the third to the sixth year is fraught with most harmful results, and should not be permitted."—BRITISH MEDICAL JOURNAL, Jan. 27th, 1906.

OPERATIVE TREATMENT of FRACTURES. New Edition, uniform with above. 7s. 6d.

THE OPERATIVE TREATMENT of CHRONIC CONSTIPATION. New Edition, uniform with above, 2s. 6d.

The Medical Publishing Company, Ltd., 22½, Bartholomew Close, E.C.

SAUNDERS'

BOOKS ON SURGERY.

FOWLER'S TEXT-BOOK OF SURGERY.

JUST ISSUED. 888 ILLUSTRATIONS.

See Advertising Page 5.

By SAMUEL WEST, M.D., F.R.C.P.

DISEASES of the ORGANS of RESPIRATION.

"It is worthy of British Medicine and of the great School in which the author is a teacher."—BRITISH MEDICAL JOURNAL.

Griffin & Co. 2 Vols., 36s. net, with numerous Illustrations.

RADIOGRAPHY: its Theory, Practice, and Applications.

With Constructional and Manipulatory Details.

By S. BOTTONE. With 54 Illustrations. 3s. 6d. net

Whittaker & Co., 2, White Hart-street, London, E.C.

Now ready, SECOND Edition, with Illustrations, royal 8vo, 10s. 6d.

TREATMENT of LATERAL CURVATURE of the SPINE.

With Appendix giving an Analysis of 1000 Consecutive Cases treated by "Posture and Exercise" exclusively (without mechanical support).

By BERNARD ROTH, F.R.C.S.

London: H. K. Lewis, 136, Gower-street, W.C.

Just Ready, Demy 8vo, 324 pp., Illustrated, Price 7s. 6d. net.

THE MEDICAL DISEASES of EGYPT. Pt. I.

By F. M. SANDWITH, M.D., F.R.C.P.

London: Henry Kimpton, 13, Furnival-street, Holborn, E.C.

Pp. 622, with 281 Illustrations, price 10s. 6d. net.

SEWILL'S DENTAL SURGERY, including SPECIAL ANATOMY and PATHOLOGY.

Fourth Edition. Edited by

W. J. ENGLAND, L.D.S., & J. SEFTON SEWILL, L.R.C.P., M.R.C.S., L.D.S.

"A complete manual."—BRIT. MED. JOUR.

"Has the charm of lucidity."—THE LANCET.

London: Baillière, Tindall, & Cox, 8, Henrietta-street, Covent Garden.

Second Edition in the Press. Price 5s. net.

THE ERRORS of ACCOMMODATION and REFRACTION of the EYE and their TREATMENT.

By ERNEST CLARKE, B.S., F.R.C.S., Surgeon to the Central London Ophthalmic Hospital; Consulting Ophthalmic Surgeon to the Miller Hospital.

SOME OPINIONS OF THE PRESS:—"A trustworthy guide for the student or the practitioner."—LANCET. "Very practical monograph, which we can thoroughly recommend to students, specialists, and general practitioners."—MED. PRESS & CIRCULAR. "Thoroughout a thoroughly practical book."—PRACTITIONER.—Bailliere, Tindall & Cox, 8, Henrietta-st., Covent Garden.

Price 10s. 6d.

DISEASES of the SKIN: An Outline of the Principles and Practice of Dermatology.

By MALCOLM MORRIS. With 2 Coloured Plates, 36 Plain Plates, and other Illustrations.

"Most suitable for general use."—THE LANCET.

"Eminently practical, and contains numerous hints and suggestions which are of the greatest value to experts."—EDINBURGH MEDICAL JOURNAL.

"A readable, reliable, and concise text-book."—DUBLIN JOURNAL OF MEDICAL SCIENCE.

Cassell & Company, Limited, London, Paris, New York, and Melbourne.

THE LANCET is registered as a Newspaper. All rights reserved.

Santyl=Knoll

Tasteless, Non-irritant, Salycilic Acid Ester of Sandal Wood Oil.

No irritant action on the kidneys; no gastro-intestinal disturbance. It causes no eructation and does not impart any smell to the breath. Can be taken in drops.

Internal Remedy in Gonorrhœa.

KNOLL & Co., Manufacturers of Fine Chemicals, 27a, St. Mary-at-Hill, London, E.C.

ORAL SEPSIS.

"EUMENTHOL JUJUBES"

(HUDSON).

MADE IN AUSTRALIA.

A Gum pastille containing the active constituents of well-known Antiseptics, Eucalyptus Globulus, Thymus Vulg., Pinus Sylvestris, Mentha Arv., with Benzo-borate of Sodium, &c., and exhibit the antiseptic properties in a fragrant and efficient form. Non-coagulant antiseptic and prophylactic, reducing sensibility of mucous membrane.

Mr. W. A. DIXON, F.I.C., F.C.S., Public Analyst of Sydney, after making exhaustive tests, says:—"There is no doubt but that 'Eumenthol' Jujubes have a wonderful effect in the destruction of bacteria and preventing their growth. ..... I have made a comparative test of 'Eumenthol' Jujubes and Creosote, and find that there is little difference in their bactericidal action."

G. HUDSON, Manufacturing Chemist, Ipswich, Queensland, Australia.

London Agent: W. F. PASMORE, Chemist, 320, Regent Street, W.

SHORT-LEG FLAT-FOOT

Concealed. Relieved.

"*MECHANICAL ORTHOPÆDICS.*"

BEING NOTES UPON MECHANICAL TREATMENT IN CERTAIN ORTHOPÆDIC CASES.

(Illustrated with Photographs and Radiographs.)

"In this little book a sound and scientific method for the correction of certain deformities of the lower extremities is described. ..... We have no hesitation in recommending these pages to the consideration of surgeons interested in orthopædics."—THE MEDICAL REVIEW.

A Copy of the above Work will be sent Post Free on application to the Publishers—

THE O'CONNOR EXTENSION COMPANY, Surgical Appliance Makers to His Majesty's Government.

2, BLOOMSBURY STREET, LONDON, W.C.

The Oliver-Sharpey Lectures

ON

THE BEARING OF METABOLISM EXPERIMENTS UPON THE TREATMENT OF SOME DISEASES.

Delivered before the Royal College of Physicians of London on April 3rd and 5th, 1906,

BY EDMUND I. SPRIGGS, M.D. LOND., F.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO ST. GEORGE'S HOSPITAL AND TO THE VICTORIA HOSPITAL FOR CHILDREN.

LECTURE II.[1]

Delivered on April 5th.

FEVER.

MR. PRESIDENT AND FELLOWS,—The treatment of fever is of the greatest importance. Such cases form a large part of medical practice. They are, moreover, in the majority of instances capable of recovery and the course of the disease may be profoundly modified by rational treatment. That a disturbance of metabolism is a prominent feature is obvious to every observer. An investigation into the nutrition of patients suffering from fever shows at once that a great increase in the excretion of nitrogen in the urine is present as compared with that of a healthy individual on the same diet. This phenomenon may begin early in the disease, even before the pyrexia, but usually does not, and it reaches its maximum much later, often after the crisis. Naunyn,[2] for instance, found on the tenth day that a patient was excreting 10·7 grammes of urea, on the eleventh day the pyrexia subsided and 45·4 grammes were excreted, and on the next day 91·9 grammes. In another case the fever was falling on the twelfth day and the excretion was 54·4 grammes, on the thirteenth 54 grammes, and on the 14th, the day of disappearance of the pyrexia, 90·4 grammes. Garratt found in scarlet fever and measles, however, that the excretion of urea reaches its maximum usually before the temperature returns to normal. When the excretion occurs late it is not due to retention of nitrogenous matter, because analysis of the tissues shows that there is no excess of urea in patients dead from fevers. Also, urea administered to febrile dogs is quantitatively excreted by them. The nitrogen arises from the breakdown of proteid tissue, chiefly muscle. This is shown by the facts that there is a corresponding increase in the output of potassium salts, sulphuric acid, and neutral sulphur and creatinin. The amount of breakdown is much greater than ever occurs with muscular work, and, indeed, in any circumstances except the taking of large quantities of proteid food. It is not due to starvation, for the excretion of nitrogen and the loss of weight is much greater in a fever patient than in a healthy man on the same diet.[3] A similar excretion of nitrogen, though less in degree, is observed after the administration of certain poisons, such as phosphorus, and in conditions of deficient oxidation.

It is important to know the cause of this breakdown of tissue and the possibility of its being due directly to the pyrexia suggests itself. Hot baths, sufficiently prolonged to cause a rise of temperature, give rise to increased oxidation, as shown by the respiratory exchange, and also to a rise in the amount of urea in the urine, occurring on the following and the third day. Predtetschenki found that the carbon dioxide might be even 70 per cent. above normal, and the nitrogen excretion from 50 to 100 per cent. (Speck, Winternitz). Muscular exertion, if carried on under conditions leading to a rise of temperature, such as in unsuitably clothed soldiers marching in hot weather, may also cause a delayed increase in the urea (Zuntz und Schumburg, Speck). But the facts that (1) the excretion of nitrogen in fever is not proportional to the pyrexia and bears no constant time relation to it, and (2) that septic infection may cause a similar rise in the nitrogen without any pyrexia (Simanowsky) are against this view that the pyrexia is the sole cause of the nitrogenous breakdown.

Again, is the tissue breakdown causally connected with increased oxidation? The determination of the oxidation going on has been made by many observers through estimations of the oxygen used and the carbon dioxide given out. The results show that, on the whole, more oxygen is generally used;[4] the excess is usually not more than 10 per cent. and seldom more than 20 per cent. above the normal (Lœwi, Langlois, Babák); there may be no increase in oxidation, and when it does occur it shows no parallelism with the excretion of nitrogen, or with the height of the temperature. Calorimetric experiments on man by Nebelthau showed that there may be an increased production of heat but the prominent factor is the inconstancy of the production. The variability and lack of decision of these results suggest that the larger use of oxygen in fever which may take place is not due to the breakdown of nitrogenous tissue at all, but to other causes, one of which is the muscular movement resulting from the restlessness which accompanies the febrile state. The patient is uncomfortable and slight movements are constantly being executed. We have seen in discussing the question of the effect of rest on metabolism how definite an effect upon the oxidation processes even inappreciable activities occasion. Atwater's subjects produced more carbon dioxide when their sleep was restless. That muscular activity is a cause of the greater use of oxygen is also supported by the observation of Zuntz that the consumption of oxygen is normal in curarised animals rendered septicæmic, since in this case no impulses can reach the muscles and cause them to contract. The non-muscular tissues are also believed to take part in the increased oxidation of fever.[5] It appears, therefore, that the breakdown of nitrogenous tissue is in some cases independent of any increase in the oxygen used, and it is probably due to the action of poisonous substances produced from the micro-organisms which give rise to the pathological process. The pyrexia is a concomitant effect of the poison acting upon the mechanism which regulates the temperature in such a way that the balance between heat production and heat loss is no longer accurately maintained. The loss is usually relatively diminished as compared with the production.

We may sum up then by saying that so far as the evidence at present leads us the products of bacterial infection cause: (1) a disturbance of the heat regulatory mechanism, resulting in instability of regulation; a febrile temperature is more easily altered by hot or cold baths than the normal; (2) a disintegration of the nitrogenous tissues, especially the muscles; and (3) the pyrexial condition is usually accompanied by increased oxidation. This is probably chiefly due to subconscious muscular movements, brought about reflexly from subjective sensations of discomfort.

We have now to ask how far and in what way these processes can be modified by treatment. It is obvious that the first thing to do is to attack the cause by means of antitoxins or any anti-bacterial substances that may be available. In addition to this method, or failing it, every means should be taken to make the patient comfortable, because the more at ease he is the less will be the reflex involuntary movements which may make a considerable demand upon his store of available energy and which in so doing shorten the length of time during which he will be able to resist the infection. Also, we can supply food to make up for energy lost. Although we usually cannot remove the cause of the fever we can diminish some of its effects by adopting measures for the reduction of the temperature. If the temperature be not dangerously high the condition of the patient as to restlessness is a useful guide in considering whether bathing or sponging should be carried out or not in order to increase the heat loss and cause a fall of temperature.

Effect of baths in fever.—The effect of cool baths upon the metabolism is shown in the results of Sassetzky (1883).[6] Nine cases of typhoid fever were observed. In each case a three-day period during which baths were administered was compared with a three-day period without baths and with the same length of time, about four weeks, after the

[1] Lecture I. was published in THE LANCET of April 28th, 1906, p. 1153.

[2] Archiv für Experimentelle Pathologie, 18, 49, 1884.

[3] Vide Pembrey, Allbutt and Rolleston's System of Medicine, vol. i., p. 823, 1906.

[4] Vide Pembrey: loc. cit.

[5] Pembrey, loc. cit.

[6] A Digest of Metabolism Experiments, p. 209; see also Virchow's Archiv, 94, p. 533.

subsidence of fever in eight of the cases. The food during the observations was milk and water. During the bath periods four baths a day were given at a temperature of 22·5°C. The patient sat up to the neck in the water and water was poured on to the head. The beneficial effects of the treatment were distinctly shown in the nitrogenous metabolism. If we take the average of the figures for all the bath periods we arrive at the result that the excretion of nitrogen was less in each case during the bath periods and the loss of nitrogen over the intake was less by 2·7 grammes per day than in the periods without the baths. This is not an average of conflicting figures, for the same effect was seen in each case. 2·7 grammes of nitrogen are equivalent to 16·8 grammes of proteid and to about 89 grammes of flesh. This comes to 267 grammes of flesh, or over nine ounces in the three days. We may assume that the fat in the body would also be spared to a considerable degree. The analysis of the fæces showed that the nitrogen excreted in this way was also less and therefore a more perfect absorption of the proteid of the milk took place during the bath period. The same observer gave quinine in three cases for a similar period and sodium salicylate in two cases for two-day periods. These drugs caused an improvement in the same way. This was more marked with quinine but in neither case was it as great as in the bath observations. Deucher[7] also found that antipyretics, which lower the temperature in typhoid fever, also lessened the loss of nitrogen. Actual nitrogenous equilibrium, however, could not be attained.

These observations seem to show that tepid or cold baths exert an influence upon the proteid breakdown in the direction of lessening it. The amount of milk supplied was two litres or more, which would give a caloric value of 1400 calories; since this would barely supply the needs, the body might have been calling upon its own proteid for energy needs for muscular movement, secretion, &c. We cannot exclude, therefore, the possibility that the baths really produced their effect upon metabolism by diminishing the subconscious movements with the fall of temperature and thus lessening the call upon the body tissue, and this might explain the results without calling in any effect of the treatment upon the direct poisoning action of the toxins on the proteid constituents of the body. Indeed, we know that cold baths do not shorten the period of the disease in typhoid fever and may conclude from this that they do not intrinsically affect the bacterial process.

In connexion with the question of baths in typhoid fever it is of interest to compare a series of metabolism observations made for other purposes with a series in which baths were given. In the "Digest of Metabolism Experiments," if we compare the figures of the excess of nitrogen in the urine over the intake in the experiments of Diakonov (1890), undertaken to investigate the action of alcohol, with those of Matzkevich (1890), undertaken to ascertain the effects of copious water-drinking but in which each patient received two or three baths per day, we see a marked difference. Each worker observed several cases; the diets are not identical but roughly alike, the amounts of nitrogenous food being similar; but whether we look at the periods with or without alcohol, or with plentiful or restricted water, the most noticeable point is that in Matzkevich's cases, in which baths were used; the loss of nitrogen is usually several grammes a day less than in those of Diakonov. I need hardly remind you that there is strong evidence of a statistical nature that the prognosis in this disease is better under the bath treatment. This beneficial result may be ascribed to the fall of temperature produced. I have already mentioned that experiments on animals have shown that the resistance to a state of inanition is much lessened when the temperature is raised, and though, as we shall see, much may be done in the direction of supplying food to such cases, in most instances we are dealing, nevertheless, with a condition of partial inanition.

Food in fever.—Coming now to the problem of the feeding of fever patients it is obvious from what we have seen of the pathology of this condition that in circumstances in which the proteid tissues of the body are being continually broken down by the action of a poison, while at the same time the needs of the body as shown by the oxidation—that is to say, the ordinary running expenses—are commonly greater than usual, it is desirable to supply to the organism what energy we can, provided that the course of the disease is not thereby adversely influenced. "One of the dangers of prolonged fever is the general failure seen in starved animals."[8]

The absorption of food.—Huppert (1869) found but little deficiency in the absorption of nitrogen in recurrent fever.[9] The first question to be answered is, If food be given, is it absorbed from the intestine? Abramovitch (1888) in seven cases of croupous pneumonia found that the absorption of proteid from bread and milk was sufficiently good during the fever as compared with that after the crisis and in convalescence. It is true that he states the opposite but an examination of the figures shows no difference great enough to have any bearing upon the point at issue. From five to eight grammes of nitrogen were given per day. Pipping[10] (1891) found that in diphtheria with moderate fever in children on a mixed diet the absorption was as good as in health unless the temperature was exceptionally high. Von Noorden found absorption good in two cases of pneumonia and in one of tuberculosis, both for proteid and fat. Hoesslin (1882) in 19 cases of typhoid fever found that the digestion and absorption of a mixed diet were, in respect to proteid, carbohydrate, and fat, very little inferior to those in health. These patients were suffering from diarrhœa which does not seem to affect the utilisation of the food unless it be excessive. Khadgi (1886) found that the assimilation of meat, bread, and milk was almost as good during typhoid fever as in convalescence. Tschernoff showed that the absorption of milk fat was almost normal; from 88 to 93 per cent. was used. We find, then, that in a number of fevers if food be introduced into the alimentary canal it is made use of. The point of difficulty is that the patient has no desire for it. Appetite is wanting because it depends upon the integrity of the stomach and this organ shares in the general depression of function of the whole body. The hydrochloric acid is usually deficient, though not commonly absent. Pepsin may generally be found to be present. Food introduced into the stomach is in most cases passed on into the intestine and though we should expect that in the absence of hydrochloric acid from the stomach the stimulus to the secretion of pancreatic juice would be wanting, nevertheless experiment shows that the nutriment is not usually discharged from the intestine. It does not, however, necessarily follow that it is made use of for purposes of nutrition because we might suppose that it is broken up by bacterial action and its energy lost to the body. The excretion of aromatic sulphates gives a guide to the putrefactive processes going on in the intestine and we find that these bodies are not necessarily increased in the urine in fevers, although this may be the case. The best answer to this doubt is that in fever it is possible to feed the patient so that the body weight is kept up in some cases and in others so that the loss is very much less than it otherwise would be. This fact proves that the food is utilised. There is, of course, no doubt that the putrefaction in the gut is often greater than normal in this condition and carbohydrate and fat may be to a considerable extent broken down into substances which would escape recognition in the analysis of the fæces. Any unabsorbed nitrogen, however, would be recognised as such, while in the putrefactive processes resulting in the formation of tryptophane and its aromatic derivatives it is possible that other amido-bodies formed can be absorbed and made use of, just as they generally are when the proteid is disintegrated by the action of the normal ferments, without an excess of bacterial growth.

In connexion with the question of digestive disturbances due to putrefaction we may notice that proteid is the foodstuff from which the aromatic portion of the molecule of the ethereal sulphates is derived and that consequently the determination of these substances in the urine only gives us information concerning the bacterial action upon proteid in the intestine. But it is important to know what foods favour or hinder this process. Analyses show that a rich diet of proteid with but little of other foodstuffs is likely to undergo more putrefaction than when abundance of carbohydrate is present. This is believed to be because from carbohydrates weak acids are produced which restrain the action of putrefying organisms. The addition of much fat, on the other hand, increases the ethereal sulphates in

[7] Zeitschrift für Stoffwechsel, 1903, p. 122.

[8] Pembrey: Allbut and Rolleston's System of Medicine, vol. I.
[9] A Digest of Metabolism Experiments, p. 240.
[10] Ibid., p. 206.

the urine. So that a diet of all three foodstuffs in the proportions generally used in health—that is, with only a moderate amount of proteid or of fat—is indicated when it is thought that the patient is suffering from the effects of harmful substances absorbed from the intestine. Constipation is favourable to excessive bacterial growth and the removal of this condition when present is often of more importance than the alteration of the diet.

The quantity and kind of food.—We must now inquire what information we may get from metabolism experiments as to the quantity of food which should be given in febrile states. The needs of the body are as great as, or greater than, usual and if possible it would be desirable to meet them with food. This is a counsel of perfection and in many cases will not be attained but, nevertheless, should always be aimed at. We have seen that in starvation, when the body is living upon its own tissues, about 25 calories per day are used for every kilogramme of body substance; fat people requiring somewhat less, since a good proportion of their weight consists of fat, and this does not undergo constant metabolic changes as does all the more living proteid tissue. We should endeavour therefore, unless there is reason to believe that the fever is likely to be of extremely short duration and the individual is well nourished, to give sufficient food to supply at least 25 calories per kilogramme of bodyweight. This is of the greater importance because, as we have already seen, the condition of inanition is far worse sustained with pyrexia. That it is possible to keep the weight from falling during fever is shown by the experiments of von Noorden in a case of typhoid fever. Some other cases quoted by him, such as those of phthisis and chronic sepsis, are less convincing as regards acute fevers. To expect to prevent the toxic breakdown of proteid by means of food is in most cases probably more than is reasonable, but it is essential to supply the energy which the body needs and thus to ward off the addition of inanition to the other dangers of the disease.

Fluid food has the advantage that it satisfies thirst but its energy value is correspondingly low. Three pints of milk contain about 1150 calories. In a man of 70 kilogrammes 25 calories per kilogramme come to 1750 calories. Milk calls forth less gastric juice than other proteid foods, but if it curds must be diluted, peptonised, or decalcified with sodium citrate, as suggested by Professor Wright. It is not within the scope of my subject to discuss the various ways in which the diet may be varied, except in so far as metabolic experiment is concerned. Has such observation shown that any foodstuff has an advantage? Since much proteid is being broken down it seems desirable, even if we do not hope to prevent the breakdown, to supply enough to replace it. An examination of the figures shows that this is not to be expected. In most recorded experiments the amount of proteid given is low, but in those in which it is not, nitrogen equilibrium is not usually attained. In those of Puritz (1893) a diet of over 2500 calories was given, amounting in some of the patients to more than 42 calories per kilogramme per day, and containing proteid corresponding from 20 to 26 grammes of nitrogen per day, and yet in the observations upon six cases of typhoid fever extending from nine to 27 days in the different cases, in none was nitrogenous equilibrium attained. We may therefore ask if there be any advantage in giving such large quantities of proteid food. The observations of Moraczewski[11] in 18 cases of pneumonia show that although nitrogenous equilibrium is not to be looked for, yet the loss of nitrogen from the body—i.e., the output minus the intake—may be much lessened by furnishing a plentiful supply of proteid. He also claims that convalescence is much shorter when this has been done. This we should expect, for the poorer the body is in proteid at the end of the fever the longer would the period of convalescence be. The same has been found to be the case in enteric fever. One way of furnishing a fair quantity of proteid is to add proton or plasmon to the milk.[12]

With the object in view of contriving that nourishment of a sufficient caloric value shall be provided, as much fat as can be taken without exciting distaste for food should be given. This quantity is not great. In addition to the fat in milk, that of cream and butter is of most value in fevers. One ounce of cream gives about 89 calories[13]; four ounces of milk about 95. So that a quarter of a pint of cream added to the day's feeds of milk adds 356 calories. Butter contains about twice as much fat as cream, and therefore two ounces of butter a day will add another 356 calories to the value, and this is likely to be nearly all absorbed. Hence a quarter of a pint of cream and two ounces of butter introduced in the milk, or upon bread, together add 712 calories to the value of the diet in an absorbable form. This is more than half the need of a woman of 50 kilogrammes, and even two ounces of cream and two of butter add over 500 calories. It is not so necessary to give fat to patients who have a large share of this substance in the body.

Carbohydrate should never be omitted from a diet unless, as in certain severe cases of diabetes, this may be necessary for a time. We have seen that it is very probable that it is the absence of this foodstuff which leads to the appearance of acetone and its congeners in the urine in inanition and other conditions, and there is reason to believe that proteid is broken down to furnish carbohydrate. The experiments of May on rabbits showed that dextrose has a considerable sparing power on proteid in fever just as in health, and that 25 per cent. of the nitrogenous output was diminished by giving dextrose. Moraczewski[14] and others have found the same to be true in man. Our object is to give carbohydrate and fat so as to insure that no proteid need be broken down to supply the energy needs of the body, since we cannot prevent proteid breakdown from toxic action. Starch is probably the best form in which to give these foods. Failure of the amylolysis in the intestine must be a very rare phenomenon and since this process takes place gradually the sugar is probably absorbed at once and the risk of fermentation is less than if a quantity of absorbable sugar is introduced at one time. Such forms of starch as arrowroot, or that in bread, or in biscuit eaten with the milk, are usually well taken. Neither carbohydrate nor fat makes demands upon the digestive activity of the stomach. Since we know, however, from the work of Pawlow that the appetite is much keener when gastric juice is called forth, it is often desirable, whatever the nature of the meal, to cause a flow of this secretion, and this may be done by the use of some form of meat extract, home-made or otherwise. No bulky foods should be used, or the patient will take an insufficient quantity.

Water must be abundantly supplied in all cases of fever. An estimation of its intake and output shows that a smaller proportion of it appears in the urine than in health, as is indeed obvious. The experiments of Matzkevich, already referred to,[15] show that water drinking carried to excess increases metabolism in typhoid fever. Some of his patients took as much as six litres of fluid altogether in the 24 hours. Eight series of exhaustive experiments were carried out and no harmful effect other than the above, which was not constant, was observed. Gruzdiév[16] also found copious water drinking (from five to 13 litres) increases nitrogen loss somewhat. The absorption of food is much the same. The author says it improves secretion from the skin and advises it. The tissues contain more water in fevers, perhaps because the number of nitrogenous molecules is increased.

Typhoid fever.—The feeding of patients suffering from typhoid fever has a special interest apart from general considerations concerning metabolism, in that the intestine is ulcerated, and it has been the general custom to give the food, whatever it be, in fluid form. A growing school of opinion regards this as unnecessary and it adds materially to the difficulty of getting a sufficient amount of fuel into the body, a matter of great importance in this fever from the beginning owing to the prolonged period of partial inanition which is likely to ensue. Also, a fluid diet, usually milk, soon becomes distasteful. In the decision of this question copious clinical statistics must prove a prime factor but it is germane to our subject to see what metabolic observations have been made which throw light upon it. In a number of the Russian experiments referred to when we were discussing the assimilation in fever, bread was taken in quantity with milk and other fluid foods, and in some meat. In those of Hoesslin at Munich, published in 1882, such articles of diet as porridge,

[11] Zeitschrift für Klinische Medicin, Band 39, S. 44, 1900.
[12] Benedikt: Münchener medicinische Wochenschrift, 1899, S. 220.
[13] Hutchison: Diet and Dietetics, p. 134.
[14] Loc. cit.
[15] 1890, A Digest of Metabolism Experiments, p. 185.
[16] Ibid., p. 188.

rice, and ham formed part of the ration.[17] The foods were chopped and given in frequent meals. He found that the temperature was not harmfully affected. The danger of inanition, he concludes, is a much greater one than that produced by a mixed diet and gastric disturbances and vomiting are much less likely to occur than with the same foodstuff time after time. The observations of Puritz were made upon six soldiers, lasting from five to 29 days in each case. I have mentioned above the sufficiency of the diet in these cases; it amounted to at least 42 calories per kilogramme and often more. Proteid was in excess, nearly three grammes per kilogramme per day, the diet consisting of meat, bread, and milk, with tea, coffee, and port wine. He reports that no albuminuria or rise of temperature was caused by the diet and no complications, relapse, or lengthening of the fever period were observed, that the patients were comfortable, and that the convalescence was shorter.

It is interesting to remember that it is possible that the changes in the tissue-lymph circulation described by Dr. George Oliver, the founder of these lectures, which follow a meal may possibly exert, both in disease and in health, a beneficial effect upon metabolism.

PULMONARY TUBERCULOSIS.

In pulmonary tuberculosis we are dealing with an infective process which may or may not be pyrexial. Suitable material must be furnished to the cells of the body (1) to enable them to provide energy for their usual needs; (2) to provide any extra energy they may require in opposing the bacillary growth and withstanding toxins; and (3) to replace any tissue which may be broken down by toxic action. In the pyrexial cases there is often in addition a want of appetite to deal with just as in the shorter fevers. In this condition the motor and secretory functions of the stomach have, nevertheless, been frequently found to be normal. With respect to the toxic breakdown we have seen that it occurs in other infections even without pyrexia. Duclaux[18] ascribes the loss of organic substance to the agency of a ferment-like substance of a tryptic nature derived from the bacillus. The wasting of pulmonary tuberculosis is not due to deficient absorption of food, for many analyses have shown that it is usually normal. For instance, in 1894 Blumenfeld and Spirig found that when from 84 to 168 grammes of fat were given in the form of butter and a mixture of olive oil and oleic acid assimilation was normal. Goodbody, Bardswell, and Chapman found that from 87 to 98 per cent. of the fat given in a mixed diet was utilised, a considerable quantity being given in the day, the averages in each period ranging from 123 to 231 grammes. Proteid is also well absorbed (Mitalesen, Mircoli and Soleri, Goodbody, Bardswell and Chapman, Ott, and older workers) except when a great excess is given, and so is carbohydrate.

Mircoli and Soleri[19] compared the needs of a phthisical patient with those of a normal man. The subject had lost 10 kilogrammes in a year and weighed 77 kilogrammes. The sputum contained a large number of bacilli. There was no pyrexia. A normal individual took a diet of 35 calories per kilogramme containing 14 grammes of nitrogen per day. But this did not suffice for the patient, who only maintained his weight and nitrogenous equilibrium when 50 calories per kilogramme were given and 29 grammes of nitrogen. Each was fed until he felt fully satisfied. He took then 30 per cent. more caloric value and 100 per cent. more proteid than the healthy man. They express the view that the excess of proteid is necessary owing to the direct action of the poison upon the tissues. On such a diet a little proteid was laid on. Ott has also shown that even with complete rest a phthisical patient will not only lay on fat but tissue proteid.

I have already referred to a diet of 50 calories per kilogramme as one found essential to maintain equilibrium in a phthisical patient. Goodbody, Bardswell, and Chapman in their researches found that from 50 to 70 calories could be given with advantage. Taking the average, 60 calories, this comes to just over 4000 calories a day in a man of 68 kilogrammes. They found also, as we have seen in the case of normal metabolism, that an excessive diet is very much better borne by patients who are below their usual weight and that it must be relaxed when the weight has passed above the normal figure. If too much food be given, although some of it may be laid on for a time, intestinal and gastric disturbances set in, putrefaction takes place in the intestine to an excessive degree, as was shown by the more than doubling of aromatic sulphates in the urine, and distaste for food soon follows. It is interesting to note that a boy, aged 13 years, whose metabolism was investigated, took and assimilated 3500 calories per day; as his weight was 35 kilogrammes this is over 100 calories per kilogramme per day. A growing individual uses relatively more food, both on account of the growth and of the larger surface loss of heat relatively to mass, and also probably on account of greater activity. The amount of food taken per kilogramme by this boy approaches that used in the case of a woman undergoing a rest cure above referred to (Hale White and Spriggs) who was taking and assimilating well a diet of over 110 calories per kilogramme per day.

With regard to the constituents of the diet Goodbody, Bardswell, and Chapman recommend 120 grammes of proteid, 140 of fat, and 300 of carbohydrate as average figures for an adult. The amount of proteid here is moderate. In this respect we may ask ourselves whether in the light of the recent movement in the direction of diminishing proteid in ordinary diets we have sufficient evidence that such large quantities are necessary in phthisis, since extra work is thrown upon the digestive organs and the kidneys. I do not know whether careful experiments have been done in which the proteid has been replaced by a sufficient caloric equivalent of other food over a considerable period. That the output of nitrogen of the body can be diminished in tuberculosis as in health by carbohydrate and fat has been shown by Laufer, who found that sugar was much more efficient than an equivalent weight of fat and still more so if the caloric equivalents be given, as 94 grammes of sugar correspond to 50 of fat. A similar investigation was made by Bockarev (1893) who investigated the effect of adding malt extract to a liberal diet. From 50 to 100 grammes were given in milk daily. Dry malt extract contains 76 per cent. of maltose and 16 per cent. of dextrin. A teaspoonful containing four grammes gives about 16 calories and a tablespoonful 60 calories, almost as much as an egg.[20] Bockarev's figures show a slight proteid sparing effect such as is to be expected from the addition of a small amount of sugar to the food.

We have seen that a phthisical patient requires more proteid than an ordinary individual according to Mircoli and Soleri, in addition to a diet of greater fuel value. In one mode of treatment extra proteid has been supplied in the form of meat powder. Kurlev (1886) carried out experiments on five cases in which there was forced feeding by means of a stomach tube with a meat powder and milk, and the metabolism during the feeding was compared with the period before and after. Only two of his experiments are of real value, since in the remainder the patient had been fasting. As much as 52·6 grammes of nitrogen (i.e., 52·6 × 6·25 proteid) was given per day for three days. An enormous quantity of nitrogen was laid on in each of the cases. In the one quoted, for instance, 12·8 grammes per day. We may probably assume that their weights were below normal. The heaviest was 54 kilogrammes. Absorption was fair, 3·9 grammes of nitrogen appearing in the fæces. The caloric value of this diet was about 3510 calories. The patients put on weight, the appetite improved, their temperature fell, the dyspnœa, perspiration, cough, and expectoration were less, and sleep was better. Experience, however, shows that with such forced feeding the weight put on above the normal weight is usually lost again,[21] and also causes deterioration in health.

In the system known as zomotherapy the object is not so much to introduce a quantity of proteid into the body as that raw meat or raw meat juice shall be taken. Héricourt and Richet[22] have published some striking experiments upon dogs rendered tuberculous, which seem to show a marvellous effect from this treatment, those animals fed upon raw meat withstanding the infection, whilst others fed upon cooked meat or other food did not do so. It should be borne in mind that raw meat is the natural food of this animal. Beneficial results have, however, been reported with other animals. R. W. Philip in favourably commenting upon the results of this treatment in man[23] mentions a metabolism

[17] Virchow's Archiv, Band 88, S. 106, S. 320.
[18] Traité de Microbiologie, tome ii.
[19] Berliner Klinische Wochenschrift, 39, 1902.
[20] Zeitschrift für Stoffwechsel und Verdauungs-Krankheiten, March, 1904.
[21] Goodbody, Bardswell, and Chapman, Journal of Physiology, vol. xxviii., p. 257, 1902.
[22] Comptes Rendus de l'Académie, 130, 1900.
[23] Practitioner, vol. lxxiv., p. 14, 1905.

research conducted by Galbraith upon patients undergoing it. Food was given of a constant nitrogenous content, but for a period raw meat was substituted for other nitrogenous food. The retention of nitrogen was increased, also the amount of hæmoglobin rose above normal, these results being coincident with a general improvement in the condition of the patient.

The value of rest, as employed in the treatment of pyrexial phthisis, has been discussed under the heading of fever. In this disease, in which it is necessary to husband all the chemical resources of the body, the conclusions we have drawn from a consideration of the metabolic circumstances apply with force.

NEPHRITIS.

The object of the physician in treating diseases of the kidneys is to maintain the nutrition of the body while keeping the excretion of nitrogenous matter, of salts, and of fluid, at such a level as shall not act harmfully upon these organs. The number of metabolism experiments in cases of kidney disease has been great during the past few years and patients suffering from acute and parenchymatous nephritis and from granular kidney have been subjects of investigation.

Absorption of proteid.—The absorption of nitrogenous food is reported to be not so good as in health[24]; from 10 to 15 per cent. of the nitrogen taken escapes in the fæces. On examination of the figures of the above workers, however, it will be seen that the amount of nitrogen discharged daily in this way is seldom more than two grammes and often less than one. The high percentage reported is due to the fact that the quantities of proteid given were small and when we remember that even when no food is taken nitrogen is excreted by the bowel we see that the percentage test is not a fair one. In general the nitrogen in the fæces is normal or nearly so. Higher figures have been many times recorded[25] but are exceptional. In such cases there may be as much as five grammes of nitrogen in the fæces in the day. With diarrhœa, such as is not uncommon in kidney disease, there is naturally a greater loss from the bowel and this is usually a coincident symptom in those cases in which an increase in the loss is reported. In Butler and French's paper[26] in four out of the five days in which the fæcal nitrogen was more than two grammes there was excessive action of the bowels. It is clear that we have no means of distinguishing what part of the loss is truly unabsorbed proteid and what part is cellular and secretory detritus or even compensatory excretion by the gut. If such true excretion exist it is clear from the above results that it can only reach a useful figure when there is diarrhœa extending over a considerable period and even then there is the possibility that the nitrogen in the fæces has never been absorbed. In this case the same result would be more intelligently and less harmfully attained by giving a little less proteid in the food. There is more ammonia in the fæces in nephritic than in other diarrhœas, but I do not know that this points to excretion from the gut, for the more recent analyses show that ammonia is not in excess in the blood in these diseases.

The excretion of nitrogen.—In acute nephritis with suppression, partial or complete, of the urine the kidney temporarily does not secrete either water or solids and it is reasonable to give what nourishment can be taken in such forms as will throw no work on this organ at all. Fats and carbohydrates answer this requirement and should for a few days be supplied in the form of dextrin, dextrose, rice, cream, and butter (von Noorden). In the more chronic forms the excretion of nitrogenous material from the kidneys is variously reported upon. Bartels (1877) in granular kidney found that the excretion of urea was normal. Fleischer (1881) affirmed that in chronic as well as in acute Bright's disease there may be retention of nitrogen even to seven grammes per day. Von Noorden and Ritter found both in parenchymatous nephritis and in granular kidney that in some cases there was retention and in others nitrogenous equilibrium and showed that there is frequently an oscillation of excretion, normal periods alternating with periods of retention. A woman with granular kidney took 15·5 grammes of nitrogen per day in the food. The urine contained 20·1 grammes—that is, 4·6 grammes more than that taken in was given out. Four days later the condition was reversed and for five succeeding days she retained 4·9 grammes per day. Again, observation of Mann's figures[27] shows the same thing. A man on a diet containing 17·5 grammes of nitrogen for two days retained 0·5 gramme and for three subsequent days ten times this amount. Similar variations were observed in other patients. Emerson[28] noticed the same phenomenon, a periodic increase of the nitrogen, albumin, and the total quantity of the urine taking place. A comparison is suggested with the spontaneous diuresis which occurs from time to time in diabetes. It is evident that with these alternations to reckon with none but observations extending over several days can guide us. Müller[29] found that if more than nine or ten grammes of nitrogen per day were given there was liable to be retention. This observation is fully confirmed by other workers. For instance, Kornblum's figures show that a patient weighing 62 kilogrammes for 11 days on 13·9 grammes of nitrogen retained 1·3 grammes per day, but on a diet containing 15·3 grammes retained three grammes per day for four days. Emerson's figures also showed delayed excretion of nitrogen on adding eggs to a milk diet in parenchymatous nephritis. We have seen that in normal metabolism this does not usually occur. There seems to be no essential difference between chronic parenchymatous nephritis and granular kidney in this respect, except that the granular kidney can often gradually adapt itself and excrete a larger amount of nitrogen daily. The striking unanimity of experimental results makes it clear that in chronic diseases of the kidney a certain amount of nitrogenous food can be satisfactorily dealt with but that an increase is followed by an excretion which is much more delayed than in health—that is, by retention for a longer or shorter period. The quantity which the kidney does excrete is about nine or ten grammes of nitrogen or about 60 grammes of proteid. This is about the same amount that we have seen a healthy adult has been shown to be able to subsist on, together with other foods. It is contained in one and a half litres of milk, or two and a half pints. When more proteid is given and retention occurs this is not necessarily followed by uræmia; neither, when uræmia occurs, has there necessarily been a preceding retention. Butler and French's figures show well that during a period of subacute uræmia the excretion of nitrogen in the urine may remain fairly constant, as compared with the periods before and after. On the nitrogen balance there was a greater excretion than intake, but this was no doubt due to the fact that the boy during the attack of subacute uræmia took so little food—less than half a litre of milk—that he was living partly upon his own tissues.

Baginsky came to the conclusion that the kidneys of children with albuminuria did not excrete nitrogen as well as did those of children in health. This is no doubt true, but the amounts given by Baginsky were excessive. In one case he gave a child of 21·8 kilogrammes 12·5 grammes of nitrogen, which is more than 0·5 gramme per kilogramme. We know that children take proportionately more food than adults, because their surface is relatively greater and also they have to grow, but with such figures as those above it is not surprising that there was a retention of 1·6 grammes of nitrogen. It follows that in treating these complaints this limitation of excretion must be recognised and that from both directions. The diet should not contain much more than 70 grammes of proteid, of which about 60 will probably be absorbed, and it is clear that it should not contain much less, for the minimum necessary for the needs of the body lies not far below this figure. Secondly, not only should the average proteid content of the diet be low but it should be constantly so from day to day. Thirdly, according to Ernberg it is advantageous to withhold occasionally proteid almost entirely from the diet for a day or two.

Allowance must be made, as we shall see shortly, if there is loss by albuminuria of appreciable amounts of proteid. Gumlich in 1892 found the proportion of the urea in the urinary constituents was a normal one, from 83 to 87 per cent. In some cases with accumulating œdema the proportion was somewhat less, even down to 72 per cent. Butler and French estimated the urea as well as the total nitrogen and the albumin and found, excluding the albumin, an average of the nitrogen in the form

[24] Garine, a Digest of Metabolism Experiments, p. 145, 1887; Prior, Ibid., p. 225, 1890; Müller, Ibid., p. 256, 1891; von Noorden and Ritter, Zeitschrift für Klinische Medicin, Sup. 1891; Mann, Ibid., 20, 114, 1892; Kornblum, Virchow's Archiv, 127, 416, 1892.
[25] Strauss, von Noorden and Ritter, Ascoli und Licci, p. 975; Lehrbuch der Pathologie des Stoffwechsels von Noorden. 1906.
[26] Transactions of the Pathological Society, vol. liii., 1902.
[27] Loc. cit.
[28] Johns Hopkins Reports, 10, I. 323, 1902.
[29] Loc. cit., 1891.

of urea of 83 per cent. and this average did not vary appreciably during an uræmic attack. There were individual variations of from 71 to 94 per cent., such as are found in normal urines. It is probable that the methods used to estimate urea may include other amides. Von Jaksch[30] states that in many diseases, including those of the kidneys and typhoid fever, from 20 to 25 per cent. of the total nitrogen in the urine may be present in the form of amido-acids or allantoin. Perhaps any accumulation of disintegration products prevents the tissues from being able to build up proteid from the amido substances formed during digestion or, on the other hand, from oxidising the products of break-down to urea as completely as usual. These variations in the amount of urea are not such as could be recognised by the ordinary hypobromite method and it follows that the testing of urine by this method to find the percentage of urea is fallacious as a guide to the excretive capacity of the kidney. Such a test is only valuable when the whole day's urine is collected and its content of nitrogen compared with that of the food. In nephritis patients are usually kept on a low diet and therefore they excrete but little urea. In ordinary cases, not upon a proteid rich diet, the nitrogen of the urine, together with that in the fæces, equals that in the food.

ALBUMINURIA.

Albumin in the urine is a direct loss to the body of material which could be used, just as is sugar in diabetes. The quantity of proteid lost in this way is usually small but if it be considerable may lead to a diet, which would otherwise suffice, being deficient in proteid. If we exclude from consideration acute nephritis or an acute process temporarily superimposed upon a chronic one, we may lay down as a rule that it is more important to feed the patient than to get rid of the albumin in the urine. Von Noorden gave a patient with albuminuria for three weeks a diet of milk containing 15·2 grammes of nitrogen; the patient remained in nitrogenous equilibrium, excreting 1·3 grammes per day as albumin and 1·9 in the fæces, therefore using 12 grammes per day. On reducing the nitrogen in the food to 10 grammes, keeping the caloric value (32 calories per kilogramme) and the quantity of fluid constant, 1·1 was lost as albumin and 2·5 in the fæces, leaving 6·3 to be used; on this diet 8·3 grammes was the daily average in the urine and so two grammes were lost daily, or 66 grammes of flesh. If sufficient food be given, with due regard to the dangers of excess which we have discussed, nitrogenous equilibrium may be maintained with large losses of albumin. I have mentioned from nine to ten grammes of nitrogen as being a desirable upper limit in the diet of a chronic nephritic, about 60 grammes of proteid. When the patient is constantly excreting a considerable quantity of albumin, proteid must be cautiously added to this, raising the maximum to from 85 to 90 grammes.

The estimation of the percentage of albumin in a single specimen of urine is liable to fallacy, for the amount of albumin is not constant during the 24 hours. Nevertheless, if the whole day's urine be collected and the albumin estimated daily variations in the percentage of albumin may form a valuable guide to the progress of the case, as Emerson has shown,[31] more so, indeed, than the total quantity in the 24 hours. The actual amount of albumin in chronic nephritis, if it be constant, though of use, as we have seen, in constructing the diet, is of little prognostic value. Emerson's experiments upon metabolism in albuminuria showed that as a case becomes chronic the percentage of albumin tends to become regular.

Important results have been obtained by metabolic experiments comparing the effect of the amount and nature of the diet upon the albuminuria. The proteid in the urine is, in the main, body proteid derived from the blood serum, as shown by precipitin tests. Food proteids, such as egg albumin, beef proteid, and lactalbumin, may be found in the urine when these foods are taken, but only in small quantities. If, as appears probable, the food proteids are completely broken down in the intestine to non-proteid substances, to be subsequently built up again into body proteid, we should only expect food proteid to occur in the urine when some of it had been absorbed in an undigested form from the alimentary canal.

The effect of food upon albuminuria.—The evidence goes to show that in granular kidney the nature of the food makes but little difference to the albuminuria, if its amount be regulated by the above principles, and no definite relation is found between the albumin and the food if the observations be carried on for fairly long periods. In acute nephritis and acute exacerbations of chronic nephritis this is not so. A rise in the amount of proteid given is usually followed by a rise in the albuminuria. Emerson's observations upon acute and subacute cases made over considerable periods with determinations of the total nitrogen metabolism are of interest. He found a parallelism between the percentage of albumin and the temperature, both tending to rise with an unsuitable diet or with an increase in the inflammatory process or with exercise. The third important symptom going with these is a diminution in the quantity of the urine. The nature of the food was of greater importance than its amount—for instance, the same percentage of albumin as before was excreted in a case of amyloid disease when the milk was reduced by half, but a sweatbread sent up both the percentage and the temperature. Perhaps the liver was also diseased in this case. Even starvation did not affect the albumin percentage to any degree. Raw eggs given with a milk diet sent up the albumin but this is an unfair test, for the same may occur in health from direct absorption. In severe parenchymatous nephritis the albumin was lowest with milk and rose when other articles were added. Milk alone has the disadvantage that a greater amount of proteid than necessary is given if more than from two to two and a half pints be taken by the patient. But cream or sugar or arrowroot may be added to this quantity without giving more nitrogen and thus the caloric value be raised.

Actual metabolism experiments as to the effect of different meats in chronic nephritis have been made by several observers. Prior[32] found that the addition of boiled eggs to the diet did not increase the albumin in the urine, neither did raw eggs when consumed with other food, but only if taken alone—i.e., under conditions which cause albuminuria in health. Offer and Rosenqvist[33] found no difference between red and white meat. Pabst's experiments[34] were not, strictly speaking, metabolism experiments, but he found that mutton, beef, veal, lamb, or fowl produced no effect on the microscopical characters of the urine as regards the number and nature of the casts present when compared with milk of the same proteid content. Kaufmann and Mohr investigated two cases of chronic parenchymatous nephritis and three of granular kidney. For five-day periods they gave a diet of 200 grammes of bread, 100 grammes of potatoes, 100 grammes of butter, 500 grammes of soup, and 325 grammes of either beef or veal to compare the effect of red or white meat. In each case there was slight loss of nitrogen but the albuminuria and the œdema were less with the beef. These periods were rather short and the proportion of nitrogenous food was too high, from 15 to 20 grammes of nitrogen appearing in the urine. In another case excreting from 12 to 13 grammes of nitrogen in the urine no difference in metabolism could be detected between diets of constant nitrogen and caloric content supplied by means of milk, beef, veal, and milk again in five-day periods, one after the other. In older experiments, such as those of Gregoriev,[35] similar observations with milk and meat lead us to no definite results, because the amount of nitrogen in the different diets varied and the caloric value was often too low.

DIURETICS.

Since the urea in the blood has been found to be increased both in nephritis and in uræmia and since we know that this substance is an excellent diuretic, one would suppose that the administration of diuretics other than water would not be likely to produce much effect. Diuretin was given in the course of Emerson's experiments and was followed by an increase in the urine, which was more dilute, though the total albumin in the urine in the 24 hours was increased. Grünwald[36] also reports that diuretin causes the excretion of a more dilute urine, with less albumin.

DECAPSULATION.

The metabolism of two patients before and after decapsulation for acute parenchymatous nephritis was observed by

[30] Berliner Klinische Wochenschrift, 1902, 39, 1013.
[31] Emerson: Loc. cit.
[32] Prior, 1890, loc. cit.
[33] Berliner Klinische Wochenschrift, 1899.
[34] Ibid., 1900.
[35] A Digest of Metabolism Experiments, p. 249.
[36] Zeitschrift für Stoffwechsel und Verdauungs-Krankheiten, 1906, p. 90.

Emerson. The period of observation was too short to give definite results, since in cases reported to have been benefited by this operation, results such as disappearance of albumin and casts have been delayed as long as a year. In a few weeks during which analyses were made the metabolism of nitrogen showed the usual features of subacute nephritis becoming chronic with oscillations of excretion. The patients reported that they felt much better and the excretion of albumin became less.

ELIMINATION OF NITROGEN BY THE SKIN.

Perspiration in health contains a small quantity of nitrogenous substances, of which over two-thirds is in the form of urea (Argutinsky). This quantity is increased by profuse sweating and as much as 0·76 gramme and even 1·36 grammes have been found in the day in a hot climate (Eijkmann, Java). Atwater found that the mean amount in 68 experiments with muscular work was 0·29 gramme of nitrogen. With conditions in which the proportion of urea and other non-proteid nitrogenous substances in the blood was increased we should expect that the quantity in the sweat would be larger. Strauss [37] has recently found that the proportion of nitrogenous substances which are neither proteid nor urea is greater in nephritic perspiration than in healthy blood serum and may, especially in uræmia, reach a similar value to that in the serum and serous effusions of nephritis. These observations strongly support the practice of producing sweating, as do actual metabolic experiments with baths of hot water or hot air.

BATHS.

Very many observations have been carried out as to the effect of baths upon metabolism in nephritis. Korkounov [38] found that the dropsy diminished and the weight with it. The diet was milk and for from three to five days two baths per day at 40° C. and of from 15 to 20 minutes' duration were given. At the same time nitrogen was retained in the body but an examination of the figures shows that this was probably because more milk was taken during the bath period, owing presumably to thirst induced by sweating. Evdomikov [39] found in acute parenchymatous nephritis that the absorption and excretion of nitrogen were definitely improved by sweating. This was induced by enclosing the subject in a rubber bag up to the neck. A blanket was wrapped round the bag and the sweating lasted from one and a half to two hours. Improvement also followed in a second case of nephritis and cirrhosis of the liver as regards absorption. Hot air baths lasting from 20 to 25 minutes from 40° to 60° C., on a mixed diet containing an excess of nitrogen (from 20 to 40 grammes) were also given by Garine in 1887 in two cases of acute interstitial nephritis. Here again the excretion of nitrogen was improved during the bath periods (five days) and for the five subsequent periods, during which analyses were carried out, as compared with five days before the baths.

WATER AND SODIUM CHLORIDE.

Since the constituents of urine are all dissolved the amount of water available is a matter of importance and it is desirable to get what information we can as to what quantities should be allowed.

We must remember that in kidney disease the blood usually contains a larger proportion of water than in health [40] but this appears to be due to poverty of proteid, while smaller molecules, such as salt ions and the non-proteid nitrogenous substances, of which urea forms from one-half to four-fifths, are usually increased.[41] Thus, since the osmotic pressure of a solution depends on the number of molecules and not upon their size such hydræmic blood may, and often does, have a greater osmotic value than normal blood. According to Strauss, to whom we owe much work upon this subject, there is a parallelism between the amount of these nitrogenous substances and the degree of œdema, though none is established with the quantity of urine excreted (Brunner) or with uræmia. Now it is clear that the accumulation of fluid in the tissues may be due to a loss of power of the excretion of water by the kidneys or to a retention of water by the tissues. In the former case the drinking of an extra quantity of water would lead to œdema and no increase in the urine. In the latter if water be held by the tissues owing to the osmotic pressure of these electrolytes and of the saline molecules, additional water taken would cause increased secretion of urine. Experiment shows that in the acute form of nephritis an addition of water increases the œdema usually and does not appear in the urine,[42] though some cases of nephritis after the infectious fevers with hæmaturia prove exceptions.

In parenchymatous nephritis many cases react to water by passing it in the urine. Only experiment can ascertain whether this be so or not in the individual instance. The presence of œdema seldom means inability on the part of the kidney to secrete more water. Hence, in the treatment of such cases when œdema supervenes it is desirable to add water to the daily diet and to find out whether it be excreted in the urine or not. If it be, this most valuable of all diuretics will enable a portion of the substances to be excreted, which by their osmotic pressure may be holding fluid in the tissues and causing the œdema. The experiments upon granular kidney with abundant urine show that additional water is usually excreted in the urine. But Kövesi and Rotnschultz state the amount of solid constituents is not increased, that is, a more dilute urine is passed. Von Noorden has found that the granular kidney can secrete urine of a normal specific gravity if water be restricted, and he is an advocate of such restriction, holding that thirst arises from some undetermined cause, but that the satisfaction of it by drinking is harmful, especially to the vascular system.

We must remember, however, that the secretion of a dilute urine more nearly isotonic with the blood than normal urine involves less work on the part of the kidney cells.[43] Galleotti found that after the injection of sodium chloride into a dog the osmotic pressure of the blood was not normal for 46 hours and the work done by the kidney was exceedingly large, but that if the dog were given water to drink the same result was produced in half the time with half the expenditure of work. Again, in Bradford's experiments [44] when the total kidney tissue was much reduced, the animals secreted a large amount of dilute urine and, at the same time, the blood became more watery and contained more urea, a condition strikingly similar to that in granular kidney. The production of dilute urine in large quantity, therefore, in this disease is, as experiment would lead us to expect, the way in which solids can be removed from the blood with the least performance of work by the kidney. Indeed, Beddard's reference [45] to the experiments of Bradford and of Ribbert applies equally well to the case of granular kidney when he remarks that the "change in the character of the urine observed in these experiments is probably to be explained in the light of Galleotti's results as the effort of the reduced kidney substance to excrete the maximal amount of material with a minimal expenditure of energy." The fact that the granular kidney may be able to produce urine of a high specific gravity does not show that it is desirable to perform this experiment upon every case of the disease.

The harm which von Noorden supposes is done to the vascular system by dealing with large quantities of fluid is also somewhat problematical or its results would be more often seen in diabetes insipidus and mellitus, in which much more water is drunk and excreted than is usual in chronic disease of the kidney.

The metabolism of water in nephritis is closely connected with that of sodium chloride and many observers have ascribed the œdema and many of the symptoms of nephritis, including the terminal uræmia, to the non-elimination of salt. It is improbable in the light of many facts that the pathology is as simple as this, but from the point of view of treatment we may look at the metabolism of chlorides in this disease. The excretion of chlorides in nephritics may follow the normal course and be equal in amount to that taken in with the food. On the other hand, a large number of analyses have been made which show that this is frequently not so. Many conflicting results are probably due to the observations not having been sufficiently prolonged, for the excretion of chlorides often oscillates, and while for a time there may be less in the urine, later in the case the retention may be corrected by a larger excretion. Sdch oscillations are also characteristic of the excretion of water and nitrogen

---

Ibid., 1904.

[38] A Digest of Metabolism Experiments, p. 249.

[39] 1887, Ibid., p. 143.

[40] Honigmann: Ergebnisse der Pathologie, viii., 1904.

[41] Lindemann, Hermann, Strauss, und Bickel. See Honigmann, loc. cit.

[42] Kövesi und Rothschultz, 1904; vide Lehrbuch der Pathologie des Stoffwechsels, von Noorden, 1906.

[43] Galleotti, vide Beddard: Recent Advances in Physiology, p. 717.

[44] Ibid., p. 721.

[45] Ibid., p. 722.

in kidney disease, and the excretion of salt is usually, but not always, parallel to that of nitrogen. This variation explains those instances in which more chlorides appear in the urine than were in the food, as in a case observed by Halpern in which in 16 days the excess of chlorides in the urine was 208·69 grammes. A similar phenomenon is the delay in the excretion of added salt. A healthy individual excretes an extra dose of salt in from 28 to 48 hours, while in kidney disease the whole of the salt may not appear for some days. This is similar to what we have seen in the case of the nitrogenous substances.

Most striking are the cases with definite retention of salt, associated with œdema. This condition is usually found in acute nephritis and severe chronic parenchymatous cases, not so commonly in cases of granular kidney, except during exacerbations of a superimposed acute or subacute process, and also when the heart is failing. In cases of one-sided disease less salt has been found in the urine from the affected kidney. The two kidneys, however, do not always excrete the same amount of salts in health. The quantity of sodium chloride in the urine in 24 hours may be less than one gramme and Bing[46] has reported two cases of achlororia, in which hypersecretion in the stomach occurred, with vomiting of salt and water, a condition which he designates as one of chronic sodium chloride poisoning. This would certainly suggest failure of excretion. Apart from diarrhœa no increase in the fæces accompanies diminished excretion in the urine. The retention of chlorides is connected with œdema, and in some instances this relation is very marked. Diminishing the amount of food has been found to be followed by less œdema, while adding salt again is accompanied by increase of the fluids retained (Javal and Widal). A similar phenomenon is observed when sodium bicarbonate is given in large doses in diabetes. While such cases are very striking we can hardly suppose that salt is the only sinning material, but may regard it as an electrolyte whose accumulation in the tissues is accompanied by fluid as a natural result of the osmotic pressure of the salt. Maries regards the tissues as the element holding the salt, either in a free condition when fluid is attracted or combined with the protoplasm as fixed salt, a hypothesis which would account for the observations of salt retention without œdema. The fact that the chlorides are reported to be present in greater quantity in œdema fluid than in blood serum is perhaps in favour of Maries' view that the tissues attract and hold the salt, but whether this be so or whether the kidney cannot excrete it, it is important to know what indications for treatment have been afforded by the workers in this field.

It has been shown that in cases of retention if the salt in the food be diminished the body soon comes into salt equilibrium.[47] About from two to six grammes a day may be allowed. There need be no fear of doing harm, for a normal individual can subsist on this amount without losing more than the intake in the urine. With this small quantity of salt the œdema and the general condition of the patient improve. Since salt in the tissues attracts water by withdrawing it from the food we are practically giving the patient water. We may also conclude that in ordinary cases of granular kidney which are doing well there is no need to reduce the salt below a moderate amount, but that this should be done when any signs of an exacerbation present themselves.

In conclusion, Mr. President and Fellows, I may express the hope that further research upon the processes of nutrition in disease may be ardently prosecuted in this country. Only by fuller knowledge can the art of healing be advanced.

It is important to remember that the information acquired by means of experimental investigations must be combined with the wisdom of clinical experience and that the means employed for the relief of illness must be adapted to the bodily state and to the circumstances of the individual. I cannot do better in this connexion than read to you the words of Bacon: "Physicians are some of them so pleasing and conformable to the humour of the patient, as they press not the true cure of the disease; and some other are so regular in proceeding according to art for the disease, as they respect not sufficiently the condition of the patient. Take one of a middle temper; or if it may not be found in one man, combine two of either sort ....."

[46] Zentralblatt für Stoffwechsels und Verdauungs-Krankheiten. 1906, S. 90.

[47] Claus, Plant, Beach. 1905. Vide Lehrbuch der Pathologie des Stoffwechsels, von Noorden, 1906.

BIBLIOGRAPHY.

Books and Reviews with Literature.—Atwater and Langworthy: A Digest of Metabolism Experiments. (Washington, 1898). Beddard: Recent Advances in Physiology and Bio-chemistry, edited by L. Hill, 1906. Chittenden: Physiological Economy in Nutrition, 1905. Duclaux: Traité de Microbiologie, tome ii. Hammarsten: Text-book of Physiological Chemistry; translated by Mendel. Hildebrandt: Ergebnisse der Physiologie, 1903, p. 693. Honigman: Ergebnisse der Pathologie, vol. viii., 1904. Langstein: Ergebnisse der Physiologie, 1905. Noorden, von: Lehrbuch der Pathologie des Stoffwechsels, 1893, and vol. ii., 1905. Pawlow: The Work of the Digestive Glands, London, 1902. Pembrey: Allbutt and Rolleston's System of Medicine, vol. i., p. 823, 1905. Speck, C.: Ergebnisse der Physiologie, 1903, p. 1. Voit, F.: Ergebnisse der Physiologie, 1902. Weber: Ergebnisse der Physiologie, 1902, vol. i., p. 710.

Journals.—Metabolism in Health and Inanition. Albu: Zeitschrift für Klinische Medicin, 43, 1, 2. Armsby and Fries: Biochemisches Centralblatt, i., p. 221. Atwater: Ergebnisse der Physiologie, 1904, i., S 497. Bial: Archiv für Verdauungs-Krankheiten, 9, 1903. Bleibtreu: Pflüger's Archiv, Band xii., 1887. Boyd and Robertson: Scottish Medical and Surgical Journal, 18, 193, 1906. Brugsch: Biochemisches Centralblatt, 1905, 711. Brandenburg: Archiv für Klinische Medicin, 58, 1896. Cannon: American Journal of Physiology, vi., 251, 1902, and viii., xxi., 1903. Caspari und Glaessner: Biochemisches Centralblatt, 2, 144, 1904. Embden und von Noorden: Centralblatt für Stoffwechsel, 1906, S. 3. Ewald: Zeitschrift für Klinische Medicin, 12, 40, 1887. Ehrström: Zeitschrift für Klinische Medicin, 49, 377, 1903. Folin: American Journal of Physiology, 13, 117, 1905. Gautier: Academie de Medecine, 1900. Hausmann: Biochemisches Centralblatt, 4, 660 1906. Hale White and Spriggs: Journal of Physiology, xxvi., 151, 1901. Hawk: American Journal of Physiology, x., pp. 115, 269. Hirschfeld, F.: Deutsche Medicinische Wochenschrift, 28, 674, 1902. Kaup: Schmidt's Jarhbuch, 277, 24, 1903. Kumawags: Virchow's Archiv, 116, 370, 1889. Kusmin: Ergebnisse der Pathologie. Lubarsch-Ostertag, v., 1900. THE LANCET, Feb. 3rd. 1906, p. 311. Landergren: Biochemisches Centralblatt, i., 545, 1903. Laulanie: Archives de Physiologie, Paris, 748, 1898. Leube: Deutsches Archiv für Klinische Medicin, 1872. i. Luthje und Berger: Deutsches Archiv für Klinische Medicin, 71, 278, 1904. Maurel: Soc. Biol., 57, 363. Pembrey: Recent Advances in Physiology and Biochemistry (Hill, 1906). Pembrey and Spriggs: Journal of Physiology, 31, 333, 1904. Poda and Praussnitz: Archiv für Verdauungs-Krankheiten, 1901, p. 217. Rieder: Zeitschrift für Biologie, 30, 378, 1884. Rübner: Ibid., 30, 73. Spriggs: Guy's Hospital Reports, 57, 1902. Strauss, H.: Centralblatt für Stoffwechsels und Verdauungs-Krankheiten, 1900, 364. Von Tabora: Zeitschrift für Klinische Medicin, 53, 460.

Metabolism in Fever and Phthisis.—Beniedikt: Münchener Medicinische Wochenschrift, 1899, p. 220. Caspari: Archiv für Verdauungs-Krankheiten, 1901, p. 230. Deucher: Centralblatt für Stoffwechsel, 1906, 122. Garratt: Transactions of the Royal Medical and Chirurgical Society, 27, 163, 1904. Goodbody, Bardswell, and Chapman: Ibid., 1902. Journal of Physiology, 28, 257. 1902. Hérie-court et Richet: Comptes Rendus de l'Academie, 130, 1900 Hoesslin: Virchow's Archiv, 95 and 303, 1882. Mohr: Zeitschrift für Klinische Medicin, 52, 314, 1904. Moraczewski: Ibid, 39, 44, 1900. Mircoli und Soleri: Berliner Klinische Wochenschrift, 39, 1902 Naunyn: Archiv für Experimentelle Pathologie, 18, 49, 1884. Ott: Zeitschrift für Klinische Medicin. i., 432, 1903. Philip, R. W.: Practitioner, 74, 14, 1905. Puritz: Virchow's Archiv, 131, 143. Predtetschenki: Archiv für Verdauungs-Krankheiten, 1902, 230. Sassetzky: Virchow's Archiv, 94, 533. Svenson: Zeitschrift für Klinische Medicin, 43, 86. Richet: Revue de la Tuberculose, 1900-01, viii., 1. Weber, Parkes: Zeitschrift für Tuberculose, 1900, 1, 93.

Nephritis.—Argutinsky: Pflüger's Archiv, 1890, xlvi., 594. Argutinsky Benedict: Journal of Biological Chemistry, i., 263, 1906. Ascoli: Biochemisches Centralblatt, ii., 227, 1904. Butler and French: Transactions of the Pathological Society of London, 53, 1902. Bing: Centralblatt für Stoffwechsel, 1906, S. 93. Eijkmann: Vide Atunter, Ergebnisse der Physiologie, 1904, 552. Emerson: Johns Hopkins Reports, 10, i., 333, 1902. Gervius: Biochemisches Centralblatt, ii., 228 Grünwald: Centralblatt für Stoffwechsel, 1906, 90. Jaksch, von: Berliner Klinische Wochenschrift, 39, 1013, 1902. Kornblum: Vide Pathologie des Stoffwechsels, von Noorden, 1892, pp. 127, 416, 1892. Koziczkowsky: Schmidt's Jahrbuch, 285, 171, 1905. Von Noorden und Ritter: Zeitschrift für Klinische Medicin Med. Sup., 1891. Offer und Rosenqvist: Berliner Klinische Medicin, 1899. Pabst: Ibid, 1900. Rzetkowski: Archiv für Verdauungs-Krankheiten, 1902, p. 548. Strauss: Centralblatt für Stoffwechsels und Verdauungs-Krankheiten, 1903.

ERRATA.—For "calorie" read *Calorie*, or *large caloric*, or *kilocalorie*. In Lecture I., p. 1154, second column, fifth line from the bottom, for "alcohol" read *proteid;* p. 1155, first column, line 34 from the bottom, for "(hard work)" read (*not* hard work); p. 1156, footnote 7, for "Rec. Adv." read *Recent Advances in Physiology and Biochemistry;* p. 1158, footnote 19, add *vol. vi., p. 251, 1902;* p. 1158, footnote 23, for "D.M.E." read *A Digest of Metabolism Experiments.* The errors were due to the proofs not having been returned in time.

UNIVERSITY OF OXFORD.—An examination for the diploma in anthropology will be held in Trinity term on Tuesday, June 12th, and the following days.—The board of Faculty of Medicine gives notice that certain alterations in the regulations for the examination in preventive medicine will come into force in November, 1906. The amended regulations are published in the *University Gazette* of April 24th, 1906.

A PAPER ON

THE PATHOGENY OF DIABETES.

Read before the Section of Medicine at the Fifteenth International Congress of Medicine at Lisbon, April 19th to 26th, 1906.

BY F. W. PAVY, M.D. LOND., LL.D., F.R.S.,
CONSULTING PHYSICIAN TO GUY'S HOSPITAL.

BEFORE the pathogeny of diabetes mellitus can be satisfactorily dealt with it is requisite that we should have a right comprehension of the nature of the disease. Without a knowledge of the pathology of the disease, based upon a correct foundation, we cannot reasonably expect to be in a position profitably to enter into its pathogeny. For this reason it is necessary to give preliminary consideration to the conditions standing at the foundation of the disease. The outside features of the disease are conspicuous enough but the conditions existing within have been involved in much obscurity. Essentially the cardinal point presented is that carbohydrate which ought to pass to utilisation in the system flows off in the form of sugar with the urine. The reason of its doing so is obviously connected with faulty chemical action located in some part or other of the economy, and the great desideratum is a knowledge of the seat and nature of the error existing.

Primarily, it may be asked, Whence comes the sugar that is found in the urine? Is it conveyed to the kidney in the blood and simply eliminated by the organ or is it formed within the kidney from some constituent of the blood that is circulating through it? Both sources appear, in different circumstances, to exist. Ordinarily, as in human diabetes, hyperglycæmia is antecedent to the glycosuria. The fault in this case lies with the abnormal presence of sugar in the circulatory system, the sugar flowing off with the urine in proportion to its existence in the blood. In phloridzin diabetes the sugar is evidently not derived from pre-existing free sugar in the blood; in other words, there is not the preliminary hyperglycæmia to give rise to the glycosuria. It seems as if through the influence of the phloridzin sugar is cleaved off from a constituent of the blood that contains it in a locked-up state whilst the blood is circulating through the kidney. Other instances present themselves in which it is evident that sugar is derivable from combined or locked-up sugar in the blood and the tissues. In human diabetes, as I have said, glycosuria is secondary to hyperglycæmia and the question is carried to the faulty action giving rise to the latter. There is a class of case in which the eliminated sugar is in a direct manner traceable to carbohydrate in the food ingested. Under the glycogenic theory it is considered that the carbohydrate of the food passes in the form of sugar through the circulatory system to the capillaries of the tissues, to be there oxidised and consumed, and the hyperglycæmia of diabetes is assigned either to an excessive influx into the circulation or to a deficient removal within the systemic capillaries. To this view of influx, transport, and removal I have contended there is the fatal objection that in proportion as sugar enters the circulation so it becomes manifest in the urine, its small molecular constitution leading to its escape with the urinary water in passing through the kidney. To keep sugar out of the urine it must be kept out of the general circulation, and this necessitates that the food carbohydrate should be dealt with by assimilation before the opportunity is afforded for its reaching the systemic blood. I have dwelt upon these matters in my recent work on "Carbohydrate Metabolism and Diabetes" (Churchill, London, 1906), and I there adduce evidence to show that at the seat of absorption in the alimentary canal the carbohydrate is assimilated by synthesis into proteid through the instrumentality of the lymphocytes of the villi, and by conversion into fat through the agency of the epithelial cells of the villi. The carbohydrate that may happen to escape being disposed of here, becomes conveyed as sugar by the portal vein to the liver, and checked in its further course by transmutation into glycogen. Thus the contents of the general circulation are guarded, as is noticeable in a state of health, against being influenced by the ingestion of carbohydrate food. Should the carbohydrate fail, as happens in diabetes, to be in this way assimilated it passes on as sugar into the general circulation and thence flows off with the urine. The difference, then, between health and "alimentary" diabetes is that in the one case carbohydrate is assimilated and prevented reaching the general circulation as sugar, whilst in the other it escapes being assimilated and, as a result, reaches the general circulation as sugar.

This brings us to the consideration of the operations concerned in the process of assimilation, as it is from their failure in being properly carried out that hyperglycæmia, and thence glycosuria, emanate. When assimilated by synthesis into proteid through the medium of the actively growing lymphocytes in the villi, the flow of which into the circulation constitutes the source of digestion lymphocytosis, sugar is put into a state to be free from liability of escape with the urine Locked up, probably as a side-chain, in a large molecule its retention within the confines of the circulation is secured, and at the same time it is in a position to be ready for detachment to meet the wants of the tissues just as happens in the case of oxygen as it exists in oxy-hæmoglobin. Synthesis or building up is now recognised as effected, like catalysis or breaking down, by the agency of enzyme action, and in this way the connexion of the pancreas with diabetes may be rationally explained. There is evidence to show that an internal secretion is derivable from the pancreas which is concerned in keeping the system exempt from the condition existing in diabetes. This internal secretion may be taken as probably contributing to the action that occurs in the construction of the bioplasm of the lymphocytes from the absorbed digestion products of the food. Enzymes, it has recently been learnt, are dual bodies, one portion being apparently of a proteid nature and losing its activity at the boiling temperature, whilst the other does not similarly lose the power belonging to it on being boiled. To the latter the name co-ferment or activator has been applied and it seems to hold an analogous position to the active agents that are obtained from the thyroid, suprarenal capsules, &c. The experiments detailed in my recently published work on "Carbohydrate Metabolism and Diabetes" already referred to point to a co-ferment-like body being yielded by the pancreas which aids in the synthetic process concerned in the linking on of sugar in the construction of proteid. Thus circumstanced, the pancreas, in relation to internal secretion, presents an alliance as regards its mode of action to the glandular structures that have been named. Under the view that has been outlined the connexion of the pancreas with diabetes is rendered intelligible. In the absence of the internal secretion, as after extirpation and in association with disease, the non-existence of the co-ferment concerned in the building up of carbohydrate into proteid would lead to failure of carbohydrate assimilation, and thence give rise to the condition met with in diabetes. What I have spoken of only touches defective assimilation through absence of proper enzymic power. Whether or not the linking on operation in the construction of proteid in the villi is related to that concerned in the production of glycogen in the liver it is impossible to say, but, as a matter of fact, the latter is as much the result of a building-up process as the former and it is possible in both instances that the issue may be brought about by the same instrumentality.

Another source of sugar in connexion with diabetes is the breaking down of complex molecules into which the sugar molecule has previously entered. Evidence is afforded of the occurrence of this phenomenon in advanced cases of diabetes where the power no longer exists of preventing the elimination of sugar by restriction from carbohydrate food. In these cases there is more or less active wasting and it may be assumed that through the influence of an abnormal enzymic agency there is a wrong katabolism or tissue disintegration proceeding which is attended with the liberation of sugar. It is in this class of case that other products of wrong retrograde metamorphosis present themselves to view—namely, β-oxybutyric and diacetic acids, and acetone. When the condition alluded to exists there is a two-fold source, of a contrasting nature, for the sugar. In the one the sugar met with is the issue of a defective anabolism or molecular building up and in the other, an abnormal katabolism or breaking down of molecules into which carbohydrate has been previously incorporated. The former corresponds with the "alimentary" form of the disease, the latter with the grave, or the "composite" form as I have styled it on account of both conditions existing together.

The point to be now considered is the question of

what gives rise to these wrong chemical procedures, resulting in the abnormal presence of sugar. The association of the pancreas with diabetes I have already dealt with, and have suggested that it may be explained by the proper enzyme influence for determining normal metabolism in relation to carbohydrate being missing as a result of the absence of the internal secretion of the organ. Here, the pathogeny of the condition, under the view enunciated, has a foundation of a simple and direct nature. Little or no doubt, I consider, can be entertained that the nervous system plays an important part in connexion with the pathogeny of diabetes. The production of glycosuria in Bernard's celebrated puncture of the medulla oblongata experiment affords a conclusive illustration of nerve connexion with glycosuria and the vaso-motor system of nerves may reasonably be considered to constitute the medium through which the effect is produced. It has been observed that vaso-motor paralysis, implicating the vessels of the chylopoietic viscera, follows the *piqure* operation. Lesions of certain parts of the sympathetic system of the neck, as I many years ago pointed out, produce, like *piqure*, glycosuria. They also lead to the same kind of vaso-dilatation. Obviously with this paralytic vaso-motor condition the circumstances as regards the blood in relation to the liver must be materially altered. The volume of blood and rate of transit must be much increased and, at the same time, its character must be modified. Observation upon the ear of a rabbit, where the cervical sympathetic has been divided, tells us that the blood passes through the capillaries in such volume and with such velocity as to escape being brought into the ordinary venous condition. The veins are seen to be filled with semi-arterial instead of proper venous blood. In these circumstances, vaso-motor paralysis of the chylopoietic area must have the effect of placing the blood in the portal vein in a semi-arterial condition and experiment has shown that the passage of blood of this nature through the liver leads to the production of glycosuria. Apparently the altered state of blood affects the surroundings of the glycogen in such a manner as to lead to its abnormal transformation into sugar. The increased velocity of the blood arising from the vaso-motor paralysis may further contribute to disturbing the natural course of action, alike at the seat of absorption and in the liver. Thus, purely through an altered state of the blood-vessels, induced by an influence emanating from the nervous system, the source of production of the sugar abnormality belonging to diabetes may arise. Support is given to the view that has been submitted by the information supplied through the medium of the vascular condition of the tongue in connexion with diabetes. In many cases of diabetes nothing special is observable in relation to this point. In others, however, a strikingly red appearance is presented. The surface is clean and of a more or less bright red colour, giving a resemblance to a piece of raw meat. The organ is in a hyperæmic state, for the production of which it is evident that local arterial dilatation must exist. This may be regarded as the specially characteristic tongue of diabetes and the condition is not of unfrequent occurrence. The point of importance connected with it is that its most highly marked form is associated with the worst cases of diabetes. Ordinarily speaking, it may be taken as an indication of severity of disease. In the worst and most acute case of diabetes that I think has ever fallen under my observation not only the tongue but the whole of the interior of the mouth was in an intensely hyperæmic condition. A fact of much interest remains to be mentioned. It is, that as improvement under treatment occurs in the diabetic state a more or less marked reduction of the redness of the tongue is, as a rule, found to occur.

I have spoken of vaso-motor paralysis implicating the chylopoietic viscera as probably constituting one source, if not the main source, of diabetes. The tongue belongs to a portion of the alimentary tract and thus may be looked upon as being connected with the chylopoietic system. Holding this position, it seems to me that what is clinically observable in connexion with the tongue may be regarded as having a reconcilable footing. The question resolves itself into extent of area of vascular implication. The tongue may or may not be involved, according to the particular circumstances existing, and it is not surprising that it should be involved in cases of the highest intensity. For many years my attention has been fixed upon the point to which I have been alluding, and I feel satisfied that the particular character of the tongue referred to has a direct bearing in connexion with diabetes. I do not state that the tongue is necessarily involved in all severe cases, nor do I state that the case is necessarily severe because the tongue is seen to be hyperæmic. I conceive that through the incidental circumstances belonging to the case the vessels of the tongue may or may not fall within the area of vaso-motor paralysis. I need scarcely say that the hyperæmic state may be found apart from diabetes, and with reference to these cases I can state that in more than one instance I have noticed sugar occasionally present to a slight extent in the urine to which, through the promptings aroused by the state of the tongue, special attention has been given.

A hyper-oxygenated state of the blood can be produced through the medium of respiration and the effect is confirmatory of what has been stated with regard to the production of glycosuria by defective de-arterialised blood. In my writings I have recorded experiments where marked glycosuria was observed as a result of the inhalation of oxygen. It happens, however, with this mode of experimenting that hyper-oxygenation of the blood is not always obtainable on account of the natural tendency of the respiratory movements to adapt themselves to the increased oxygenating efficiency of the agent employed. In other experiments recourse was had to a pumping arrangement, whereby inflation of the chest could be induced at any desired frequency, and thus, even with the employment of air, hyper-oxygenation of the blood could be effected. Here also glycosuria proved to be susceptible of being produced. Hence, simply through an alteration of the condition of the blood in relation to its oxygen, metabolism may be deranged and glycosuria induced. The arteries fall into connexion with the matter through the medium of the governing effect of their muscular coat on the flow of blood through the capillaries and in the train of further connexion the muscular coat of the arteries is under the controlling influence of the nervous system. Thus the nervous system is brought into relation with metabolism through the intervention of the capillary circulation in the particular vascular area concerned.

I think it may be taken to be by general consent admitted that the nervous system is involved in the pathogeny of diabetes. Such an array of evidence from all sides can be adduced as to leave no doubt that cerebral action is intimately related, as an influencing factor, to the disease. It is in connexion with the neuropathic disposition that it is most frequently found to exist and the more sensitive and highly strung the nerve organisation the more intense is the form that the disease assumes. A cerebral influence over the vaso-motor state is what is suggested as constituting the link between brain and diabetes. We know comparatively but little at present of the physiology of the vaso-motor system of nerves through which cerebro-spinal influence upon vessels is exerted. The fact that such influence is in constant operation is sufficiently evident from the incessant vascular changes from mental and emotional states that are taking place. Certain parts of the grey matter of the brain appear to be in touch with blood-vessel areas and it is submitted that the nerve filaments of the sympathetic system are not only connected with the spinal cord and medulla oblongata but with spots at the surface of the brain which stand in the position of cerebral vaso-motor centres. Upon these grounds a chain of connexion becomes established rendering it possible for diabetes to constitute a disease belonging to the neurosis class, the difference in its case being the implication of a particular area belonging to the vaso-motor system instead of structures connected with voluntary motion, sensation, and the mind. There is ample evidence of different kinds to show that cerebral states are capable of producing a marked influence upon the condition of the circulation in particular areas and the more sensitive the person the greater is the susceptibility to the occurrence of the manifestation of the influence. The flushing of the face from an emotional cause affords a good illustration of the point in question. The watering of the mouth as a result of a passing thought in connexion with food supplies another, for an altered vascular state of the salivary glands may be considered to stand at the foundation of the flow of saliva that takes place. The kidney is an organ which is frequently giving evidence of the influence of cerebral action upon a particular vascular area. Neurotic polyuria is an effect of common occurrence in association with different cerebral conditions. I consider diabetes

insipidus may be regarded as the result of a persistent vaso-dilatation, implicating specially the renal vascular area. If this area alone, as is usually the case, is affected no sugar is found in the urine, but it sometimes happens that a mixed condition of diabetes insipidus and mellitus exists—in other words, that an excessive amount of urine of low specific gravity is passed containing a limited amount of sugar. In these cases I consider the vaso-dilatation is not restricted to the kidney, but also implicates, to a greater or less extent, the vessels of the chylopoietic viscera. My experience has supplied me with an instance where the patient for a time was the subject of well-marked diabetes mellitus which subsequently completely disappeared, and was some time later followed by pronounced diabetes insipidus. It is common in diabetes insipidus, as in diabetes mellitus, to meet with an associated neurotic disposition. Exophthalmic goitre, in my opinion, may be referred to as affording an instance of a disease connected with a local vaso-dilatation. After the disease is established the altered secretion of the thyroid may produce ill effects upon the system; but primarily, it seems to me, a vaso-dilatation of a particular area constitutes the condition to be dealt with. It is well known that this disease is associated with the neurotic disposition, and I believe it to be essentially a neurosis affecting a particular part of the vaso-motor system. It sets in from mental shock, &c., like other neurotic diseases, and subsequently pursues the same kind of course. Not infrequently more or less glycosuria is present. In these circumstances I should consider that the vaso-motor abnormality involves to a greater or less extent the vessels belonging to the chylopoietic viscera.

Grosvenor-street, W.

ON THE

ACTION OF VENOMS OF DIFFERENT SPECIES OF POISONOUS SNAKES ON THE NERVOUS SYSTEM.

BY GEORGE LAMB, M.D. GLASG.,
CAPTAIN, I.M.S.; DIRECTOR, PASTEUR INSTITUTE OF INDIA;
AND
WALTER K. HUNTER, M.D., D.SC. GLASG., F.F.P.S. GLASG.,
PHYSICIAN, GLASGOW ROYAL INFIRMARY; LECTURER IN PRACTICE OF MEDICINE, QUEEN MARGARET COLLEGE, UNIVERSITY OF GLASGOW.

V.—VENOM OF COMMON KRAIT (BUNGARUS CŒRULEUS).

IN continuation of our previous papers on the above subject[1] we have now to take up a fourth venom—namely, that of the common krait (bungarus cœruleus). This snake, one of the common poisonous snakes of India, is of small size. Its venom is, however, of much greater toxicity than that of the cobra—in fact, than that of any other terrestrial Indian species. When tested subcutaneously on rabbits it is found that the minimum lethal dose of bungarus cœruleus venom is at least a third that of cobra poison. This much greater toxicity of the poison compensates for the small amount which on account of the small size of the snake is injected at each bite. There can be no doubt that this snake is responsible for a great number of the fatalities from snake-bite, especially in the northern portion of India, where the species abounds. The venom is extremely difficult to procure, as even experienced snake-catchers handle this agile reptile with a considerable amount of reluctance. It is for this reason, and for this reason only, that the amount of work which has been done on the physiological action of bungarus cœruleus poison is very small. In fact, we can find in the literature mention of the subject only in two papers—one by Rogers,[2] and the other by Elliot, Sillar, and Carmichael,[3] working in Sir T. R. Fraser's laboratory.

While Rogers came to the conclusion that the symptoms following poisoning by this venom are identical with those following poisoning by cobra venom, the results got by the last-mentioned workers "seem to indicate that while these symptoms are similar, still they differ so much in relative degree as to render it doubtful if they can in future be spoken of as identical." No particulars, however, so far as symptoms are concerned, are given by these observers as to how this relative difference is to be determined. Our experience after many experiments on monkeys and rabbits has convinced us that even a trained observer without physiological instruments could not tell the difference between the symptoms of cobra venom intoxication and those seen in cases of poisoning with the venom of the common krait. Differences in physiological actions are to be observed but these differences are not, in our opinion, apparent in the symptoms which are observed after the injection of the poisons. It is therefore unnecessary for us again to detail these symptoms, an account of which has already been given in connexion with cobra venom in our first communication. We need only mention that paralysis, beginning in the skeletal muscles and gradually involving the muscles of respiration, is the most prominent symptom, and the symptom which dwarfs those that might arise from any action which the poison might have on the circulatory apparatus. From observations of the symptoms alone one would at once conclude that death in krait poisoning was due to failure of the respiratory mechanism.

If the poison is injected intravenously in sufficient amount very rapid death takes place but no intravascular thrombosis can be demonstrated. Further, in the more chronic cases there is no diminution of the blood coagulability. We have also been unable to show any action of the venom whatever *in vitro* on citrate or oxalate blood plasma. As one of us[4] has already dealt with the action of this venom on the red blood corpuscles we need not further enter into that question. As regards its action on the heart and circulatory apparatus some interesting observations have been made by Elliot, Sillar, and Carmichael. They show that this venom has a decided action on the circulatory apparatus in general, which action is to a certain extent similar to that of cobra venom. It may be said to be similar to cobra venom in its action on the heart muscle or its nerve end mechanism, in its cardio-inhibitory action, and in its direct action on the arterial muscle or its nerve end mechanism. These actions are, however, much more feeble than the corresponding actions of cobra venom. In addition to these effects krait venom has another and important action on the circulatory apparatus which is wanting in the case of cobra poison. An injection of the poison is followed by a well-marked fall of blood pressure, which fall is due to a dilatation of the smaller arteries throughout the body and is probably of central origin—in other words, a paralysis of the vaso-motor centre.

With this brief introduction, which really embodies all that is known about the physiological action of bungarus cœruleus venom, we may now pass on to detail the observations which we have made with a view of ascertaining if any histological changes could be demonstrated in the nervous system of animals intoxicated with this venom. We have examined the nervous systems of four monkeys dead at different intervals after the injection of the poison and also the central nervous system of a man who died a few hours after being bitten by a krait. The following are the details of the monkeys.

Animal.	Weight in grammes.	Dose of venom in milligrammes per kilogramme.	Time before death.
Monkey No. 31	2730	0·01	16½ hours.
,, 32	2620	0·025	12 ,,
,, 33	2650	0·05	10 ,,
,, 34	2560	0·08	4½ ,,

The tissues from the first three, Nos. 31, 32, and 33, were fixed in perchloride of mercury; those from No. 34 in formol. Sections from all were stained (1) with thionin according to Nissl's method, and (2) with hæmatoxylin and eosin. Portions of the central and peripheral nervous systems in all of them were also fixed and stained according to Busch's method.

Monkey No. 31, weight 2730 grammes, died in 16½ hours

[1] THE LANCET, Jan. 2nd (p. 20), August 20th (p. 513), and Oct. 22nd (p. 1146), 1904, and Sept. 23rd (p. 883), 1905.
[2] Philosophical Transactions of the Royal Society of London, Series B, vol. clxxix., pp. 123-91.
[3] Ibid., pp. 327-45.
[4] Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India, New Series, No. 17.

after subcutaneous injection of 0·01 milligramme per kilogramme of bungarus cœruleus venom. In the anterior horns of the cord not a normal ganglion cell was to be seen, though various stages of the degenerative process were represented. The majority of the cells were skeletons, quite well stained, but with no granulation whatever; some were vacuolated. The more central and internal cells seemed most affected and many of these were mere shadows (ghost cells). In the cervical and lumbo-sacral enlargements some three or four cells were to be seen in the lateral groups of each horn rather too diffusely stained and with the remains of Nissl granules still present. These granules were mostly confined to the periphery of the cell, the perinuclear area being most often devoid of granulation. In most of the cells the nucleus was central, but in many of them it was diffusely stained and this we take to be "homogeneous degeneration" of the nucleus. The degenerative process generally seemed rather less marked in the cervical and lumbo-sacral enlargements than in the upper cervical and dorsal regions of the cord. And comparing the appearances with those of cobra venom poisoning there is the suggestion that here we have a less acute degenerative process going on. With cobra venom the degeneration seemed to affect the whole of the Nissl granules in the cell at the same time, the granules seeming to disappear as if they were being dissolved out. Here, however, with bungarus cœruleus venom certain of the cells suggest that the degenerative process is to begin with perinuclear, extending thence towards the periphery of the cell. In the medulla and pons changes were to be found similar to those in the cord and not one normal cell could be found. In the twelfth nucleus most of the ganglion cells were deeply and some rather diffusely stained. Some again had the remains of their Nissl granules still present; the remaining cells were skeletons, quite devoid of granulation. In the lateral nucleus the changes were similar to those in the twelfth nucleus. But the remaining cells of the reticular formation were much paler, many of them mere "ghosts," and suggested a still more advanced stage of degeneration. The cells in the seventh, sixth, fifth (motor), and third nuclei were similar in appearance to those of the twelfth nucleus. In the ganglion cells of the cortex the changes were similar to those described in the cord. In some cells there were fragmented granules at the peripheral with a homogeneous perinuclear area and in others very definite vacuolation. There were also undoubted degenerative changes in the ganglion cells of the cerebellum. With Busch's stain there was no appearance of degenerative fibres in the cerebrum, cerebellum, or cord.

Monkey No. 32, weight 2620 grammes, died in 12 hours after subcutaneous injection of 0·025 milligramme per kilogramme of bungarus cœruleus venom. In this animal the microscopic appearances were very similar to those of monkey No. 31. In the cord there was possibly a slightly larger proportion of cells with diffuse staining of the plasma and in the lateral groups of the anterior horns in the cervical and lumbo sacral enlargements a few cells were to be seen with their Nissl bodies still present and but little fragmented. In other cells vacuolation was very evident. But the majority of the ganglion cells in the anterior horns were best described as deeply stained skeletons quite devoid of granulation. In the medulla the more internal groups of ganglion cells of the reticular formation were here also almost all ghost-like and much broken up. But in marked contrast were the cells of the twelfth nucleus which were deeply and rather diffusely stained and many of them with some granulation still present. In the cells of the lateral nucleus the degeneration was more marked than in the twelfth nucleus but much less so than in the other cells of the reticular formation. The appearances in the seventh, sixth, and third nuclei were like those in the twelfth nucleus. In the cerebral cortex most of the smaller cells were pale and without granulation. The larger cells were much more deeply stained, some diffusely stained, and most of them still contained some granulation, though in many it was limited to the periphery of the cell, the perinuclear area being devoid of granules. In the cerebellum the cells of Purkinje were similar to those in monkey No. 31. They were diffusely and deeply stained, with no proper differentiation of their chromatic granules. With Busch's stain there was no appearance of degeneration in the fibres of the cortex or cord. But on staining the cord (longitudinal as well as transverse sections) according to Donaggio's method, there was no doubt as to the large proportion of fibres that showed signs of an early degeneration. There was but little swelling of the axis-cylinders, though many were tortuous in their course and retained the stain much better than in normal fibres. The myelin in places was ill differentiated from the axis-cylinder, its outline was not well defined, and it also stained more deeply than normal.

Monkey No. 33, weight 2690 grammes, died in ten hours after subcutaneous injection of 0·05 milligramme per kilogramme of bungarus cœruleus venom. In the cord most of the central cells and a proportion of the lateral cells were pale and without granulation. The rest of the cells in the lateral groups were rather deeply and diffusely stained, some with the granules a good deal fragmented but a proportion with their granules still intact. The process seemed most advanced in the dorsal region where cells with vacuolation were to be seen. In this dorsal region some slight capillary hæmorrhages into the grey matter were present. In the medulla the cells of the twelfth nucleus seemed practically normal. Those of the lateral nucleus stained too diffusely and they were somewhat deficient in granules. The other cells of the reticular formation (including the tenth motor) were pale and almost devoid of granulation. The cells of the seventh and third nuclei seemed like those of the twelfth—almost normal. The larger cells of the cortex were but little changed. They were possibly rather deeply stained and their granules were therefore not so sharply defined as they should be, but no definite fragmentation was to be made out. With Busch's stain there was no appearance of degenerate fibres in the cerebrum, cerebellum, or cord.

Monkey No. 34, weight 2560 grammes, died in four and a half hours after subcutaneous injection of 0·08 milligramme per kilogramme of bungarus cœruleus venom. In this animal there were but few signs of the degenerative process seen in the three former cases. In the anterior horns of the cord the more internal cells were pale, with some deficiency in their granulation, but the cells of the lateral groups were practically normal. They possibly stained rather deeply and diffusely but in almost all of them the Nissl granules were consistent and fairly well defined. The appearances in the medulla and cortex were as in the cord. With Busch's stain there was no reaction for degenerate fibres in the cord, cerebrum, or cerebellum.

The peripheral nerves examined in these four monkeys were right and left vagi, right and left medians, and right and left posterior tibials. They were stained by the methods of (1) Busch, (2) Donaggio, (3) with hæmatoxylin, and (4) in monkeys Nos. 32 and 34, with Congo red (for axis-cylinders). The nerve terminals were also examined, having been fixed and stained in osmic acid and teased out in xylol. With Busch's method no unequivocal reaction of degeneration was obtained, but Donaggio's stain showed undoubted signs of an early degeneration. In a large proportion of the fibres the axis-cylinders and myelin were irregular in outline, they seemed to run into each other in places, and they stained much more deeply than normal fibres. With Congo red slight swellings of the axis-cylinders were also to be made out, rather more marked in monkey No. 32 than in No. 34. No definite increase in the internodal nuclei could be seen.

As to the nerve terminals, the changes were most marked in monkey No. 31. In this animal very few normal fibres were to be found. In most of the fibres the myelin was broken into segments and instead of running a straight course along the margins of the fibre it had a wavy outline—that is to say, the myelin was still intact (except for its segmentation) but instead of being in straight lines the lines were tortuous. In places in some of the fibres little dots of fragmented myelin were to be seen in the centre of the fibres. Some few fibres stained diffusely, showing no differentiation of the myelin. They looked as if the myelin had passed into solution and overflowed into the region of the axis-cylinder. The appearances of the nerve terminals in the other monkeys were much the same as in monkey No. 31, only the proportion of normal fibres in Nos. 33 and 34 was much greater, being in No. 34 very considerable. The following are the details of the human case.

A soldier found a snake in his bed about 9.30 one night. He picked it up and tossed it to a comrade who was standing near. After playing about with it for some time they apparently killed it by hitting it on the head and thrusting a fork through the head. The original finder of the snake then picked it up and putting it in his shirt got into bed. About 3.30 A.M. his comrades, noticing that the man was ill, took him to hospital where he died at 6.10 A.M. On

admission to hospital the patient was semi-comatose and complained of difficulty in breathing and later of a burning sensation in his left hand and arm. Breathing became more and more embarrassed and ultimately ceased about 6 A.M. two hours after admission to hospital. A small puncture was found on the inside of the ring finger of the left hand.

The post-mortem examination was made four hours after death. The brain and spinal cord, the only tissues examined, were fixed in formol. The snake was found dead in the morning. It was identified as a bungarus cœruleus. Sections from the cerebral and cerebellar cortices, from the pons, the medulla, and the cord were stained with (1) thionin, (2) hæmatoxylin and eosin, and (3) with Busch's fluid. The cortical cells did not stain well, probably due to a fault of fixing, so that nothing definite can be said in regard to them. But the motor ganglion cells throughout the pons, the medulla, and the cord were practically normal. They stained possibly more intensely than normal and some of them too diffusely, but no fragmentation or disappearance of the Nissl granules was to be seen such as was met with in the motor ganglion cells of the first three monkeys. The cells of the tenth (motor) nucleus were equally normal with those of the seventh and twelfth nuclei. With Busch's stain no degenerate fibres were detected.

We have said that the symptoms produced by the venom of bungarus cœruleus are about identical with those on injecting cobra venom, and we may now add that the histological changes in the nervous system in the former intoxication are in general similar to those that we have already described as characteristic of the latter. With bungarus cœruleus venom, however, the chromatolysis seemed less acute, for after ten hours, as in monkey No. 33, though the signs of degeneration were undoubted, they were not so far advanced as with cobra venom after six hours. There were not so much vacuolation and breaking up of the cell generally. In monkey No. 34, too, the appearances were practically normal, showing that with bungarus cœruleus venom more than four and a half hours must elapse before definite signs of degeneration show themselves. We have already noted that the chromatolytic process in the individual cells seemed less acute than with cobra venom, for there was evidence in certain cells of a definite fragmentation of the Nissl granules and of the process being, to begin with, perinuclear and extending thence towards the periphery. This venom, like cobra venom, seems widespread in its action. But in comparing the ganglion cells at various levels of the central nervous system in these four monkeys it seemed as if it was also somewhat selective. In the cord the degenerative process seemed more advanced in the dorsal than in either the cervical or lumbo-sacral regions. And taken as a whole the cells of the anterior horns of the cord were more affected than those of the cranial nuclei (excepting the nucleus ambiguus). The process was uniformly most advanced in the cells of the reticular formation, excluding the nucleus lateralis, which nucleus seemed little more affected than the twelfth nucleus. The cells of the cortex were about equally affected with those of the bulbar nuclei. But while in a measure selective, this bungarus cœruleus venom is too widespread in its action to draw any definite conclusions from the histological examination in regard to any special action it may have on the centres in the medulla. All we can say is, that the more mesial cells of the reticular formation, which probably contain the respiratory centre, are most affected; and that the lateral nucleus cells, in which, we take it, lies the vaso-motor centre, are much less affected—not much more than the twelfth nucleus, which in turn is less affected than almost any other motor ganglion cells throughout the whole nervous system. This venom would also seem to have a widespread action on nerve fibres as well as on ganglion cells. Monkey No. 32 shows this well, for in this animal the intra-medullary fibres as well as those in the peripheral nerves were examined by means of Donaggio's stain. There was no definite breaking up of myelin or axis-cylinders but the outline of both was in many places altered and both retained the stain much more tenaciously than do normal fibres. The staining was not so intense, however, as with cobra venom, for with this poison the axis-cylinders stained much more deeply even after a considerably longer period in the decolourising fluid. Indeed, it was with difficulty that one could decolourise the axis-cylinders in cobra poisoning. If this intensity of staining is an indication of the extent of the change in the axis-cylinders (and we take it that this is Donaggio's view) then the action of cobra venom on axis-cylinders is much more marked than that of bungarus cœruleus venom.

As to the human case which we have recorded, the examination of the central nervous system was negative. This may be due to death taking place too quickly for histological changes to develop. We have seen that in the monkeys not less than four and a half hours appear to be necessary before changes show themselves. In the human subject the ganglion cells are probably more stable, and this period is therefore probably somewhat longer. We do not know how long the man lived after being bitten, but it was almost certainly not less than three hours and probably from six to eight hours. It is doubtful if sufficient time had elapsed for degenerative changes to show themselves in the ganglion cells.

22 FATALITIES WHICH HAVE OCCURRED UNDER ETHYL CHLORIDE.

BY THOMAS D. LUKE, M.B. R.U.I., F.R C.S. EDIN.,
LECTURER ON ANÆSTHETICS TO THE UNIVERSITY OF EDINBURGH.

SOME three years have elapsed since ethyl chloride came into general use in this country and it recently occurred to me that it would be both interesting and profitable to collect as far as possible all the fatal cases which have occurred up the present time. Naturally this has been no easy matter, but up to the time of writing it has been possible to collect 22 fatal cases, in regard to some of which very complete details are available [1] It cannot be supposed that the list is in any way a complete one, for there is perhaps a not unnatural reluctance on the part of every medical man to shrink from the publication of any cases in which he has been unfortunate or has made an error in judgment; and though a death from an anæsthetic is by no means necessarily due to want of skill on the part of the administrator, still there is a widespread impression that the less there is said about such unhappy events the better for all concerned.

At the present moment it might be said with some truth that all the profession (and I include the sister profession of dental surgery), like ancient Gaul, is divided into three parts. We may roughly divide it into (1) those members who use ethyl chloride with some discrimination and intelligence and deprecate its routine employment in the place of the very much safer nitrous oxide; (2) those who employ ethyl chloride with more enthusiasm than discretion; and (3) those who do not use it at all but, with a conservatism more remarkable than to be admired, faithfully adhere to chloroform when any anæsthesia, however brief, is indicated. It is to be hoped that the publication of the following series of fatalities may confirm the first class in their position but make it plain at the same time to the second that ethyl chloride is not a substance to recommend offhand to anyone who comes into the surgery, but requires for its safe administration discrimination, caution, and skill.

CASE 1. *Lothaissen's case* (at Innsbruck).—The patient was a very strongly built man with an alcoholic history. After the narcosis had been maintained for about three minutes he became very cyanosed. Some fresh ethyl chloride had just been added as there was a tendency to struggle on his part. The corneal reflex had disappeared and the respiratory muscles were in a state of spasm, the patient's face was markedly cyanosed, and the pulse could not be counted at the wrist. Finally the heart ceased to beat altogether. It was estimated that five cubic centimetres of ethyl chloride had been inhaled. The form of inhaler employed was the semi-open mask of Breuer. At the necropsy some eccentric hypertrophy of the heart was noticed with fatty degeneration, the coronary arteries were in an atheromatous condition, and the blood was cherry-coloured, as seen in cases of carbon monoxide poisoning.

CASE 2. *Besart's case*.—The patient, a child, aged 12 months, required a tracheotomy for the relief of stenosis of the air passages caused by diphtheria. Three cubic centimetres of ethyl chloride were administered, the

[1] Since then a further fatality has, I believe, occurred at Guy's Hospital.

operation was commenced, and after about three minutes two cubic centimetres more were added. In spite of the trachea being opened the breathing became worse and worse, the circulation and respiration stopping at last entirely, while the patient became deeply cyanosed and the pupils widely dilated. The mask used was a semi-open one.

CASE 3. *Olcott Allen's case.*—The patient, a coloured man, aged 28 years, was to be operated on for incarcerated hernia. He had been vomiting freely but the vomit was not of a fæcal character, the general condition being good on the whole. Anæsthesia was started by ethyl chloride and progressed satisfactorily until the patient was in full narcosis when a change was made to ether. Just as the ether was applied he vomited and retched, bringing up a large quantity of nearly clear watery fluid. The vomiting ceased in about three or four minutes but the breathing did not begin again, the patient was cyanosed in appearance, and no pulse could be felt. No obstruction could be felt in the throat, but as a necropsy was not allowed this question could not be further gone into.

CASE 4.—The patient, a female, aged 18 years, was suffering from some affection of the sacro-iliac joint, supposed to be either an abscess or sarcoma. She was thin and tuberculous in appearance. After a careful preparation for anæsthesia she was given five cubic centimetres of ethyl chloride by means of an Ormsby inhaler as a preliminary to etherisation. Anæsthesia was easily induced without struggling. At the first sound of stertorous breathing the inhaler was removed and ether was put on the sponge but the anæsthetist noticed before replacing the face-piece that the patient's breathing had suddenly become shallow and on examination it was found that the pulse was not perceptible. Strychnine was injected and artificial respiration was carried out for upwards of half an hour but with no good result. The patient seemed to breathe naturally a few times but the pulse never came back. The pupils were dilated and the reflexes were absent. The amount of ethyl chloride actually inhaled was, in the anæsthetist's opinion, not more than from three and a half to four cubic centimetres. At the necropsy a large sarcomatous tumour arising from the sacral vertebræ was found in the pelvis. There were no secondary deposits and the heart and other organs were quite normal.

CASE 5.—The patient was a robust and healthy man, aged 24 years, who was suffering from a large abscess under the right jaw, alveolar in origin, which was pointing just below the angle of the jaw. He had been unable to take any nourishment practically for three days prior to the operation. His breathing just before the operation was quite normal and there was no dyspnœa or blueness. The heart showed no abnormality of action on examination. Six cubic centimetres of "kélène" (ethyl chloride) were sprayed on to a double layer of lint inserted inside the face-piece of the inhaler and anæsthesia was rapidly induced without any struggling or sign of distress on the patient's part. The abscess cavity was incised (the inhaler having previously been removed) and about two ounces of pus were evacuated. At this moment the patient stopped breathing and the medical man who was looking after the anæsthetic forced open the mouth with some difficulty and pulled out the tongue. Respiration began again, though somewhat imperfectly. The operation was rapidly concluded, when suddenly the breathing again ceased. As artificial respiration seemed ineffectual owing to some throat obstruction tracheotomy was performed, when the air entry became satisfactory but no further respiratory effort was made by the patient in spite of the injection of strychnine and the use of various mechanical stimuli. At the necropsy all the organs were found to be healthy. A large abscess cavity was found, however, extending from the angle of the jaw on the right side to well beyond the middle line of the neck. There was no pus remaining in it. There was very marked œdema of the glottis present but there was a fair amount of passage left for air. On the right side, however, there was a bulging fold of mucous membrane which might have been sucked into the opening and acted as a plug and caused complete obstruction. The medical men concerned were greatly struck by the very marked rigidity present, leading to great difficulty in getting the mouth open; the head and neck were spasmodically fixed in a somewhat retracted position. They concluded that death was due to tracheotomy not being done soon enough to relieve the asphyxial condition which led to secondary heart failure. It was stated that some three minutes elapsed between the arrest of breathing and the establishment of a free airway.

CASE 6.—The patient, a man, aged 67 years, was admitted to a hospital in Birmingham suffering from a swelling of his jaw and neck, accompanied by some dyspnœa. His breath was foul and he had a purulent discharge into the mouth. There was a brawny swelling of the whole lower jaw which had been forming for several months. A diagnosis of malignant growth of the lower jaw was made. The patient was carefully prepared for an anæsthetic and the chest was examined. The heart was found to be enlarged, but the sounds, though feeble, were to be heard distinctly. The expansion of the chest was imperfect, the breath sounds were harsh, the expiration was prolonged, and rhonchi were present. The urine contained some albumin. Six cubic centimetres of ethyl chloride were sprayed into an Ormsby inhaler and anæsthesia was induced without any struggling in about one and a half minutes. At the moment of the incision the breathing was noticed to be shallow and the pupils dilated with a sluggish conjunctival reflex. There was no jaw spasm. The incision having been completed some fluid, chiefly blood, escaped when the patient suddenly stopped breathing. The inhaler, which had been kept on now for about two minutes, was removed, the mouth was wedged open, and the tongue was drawn out. As the patient made no attempt to breathe artificial respiration was at once begun, while the wound was hurriedly stitched up and dressed. The patient began to struggle and tried to get off the table, struggling violently for three or four minutes but not regaining consciousness; at the end of this time the breathing again ceased and he became cyanosed to a marked degree. Artificial respiration was again commenced and carried on for some 15 minutes and strychnine was injected. The pulse could not be felt nor the heart sounds heard. Tracheotomy was performed and artificial respiration was carried out assiduously with rhythmic tongue traction but without any good result and the efforts were finally abandoned. At the necropsy, which was performed by the resident pathologist, a large swelling composed of malignant glands was found in the neck and by means of it the wall of the pharynx was bulged in and pushed almost to the middle line, narrowing its diameter to about one-half the normal. The width of the larynx was also considerably diminished. The laryngeal muscles were invaded by the growth and the left vocal cord was swollen and œdematous. The heart weighed 23 ounces. The heart muscle showed fatty infiltration and the wall of the ventricle was exceedingly thin, in one place being not more than one-tenth of an inch thick. The right ventricle was much dilated and contained blood clot. The liver was in a state of fatty degeneration and infiltration, with recent venous congestion. The kidneys were cirrhotic.

CASE 7.—The patient, a female, aged 29 years, was admitted to a hospital in Dublin suffering from chronic cardiac disease and failure of compensation. Her abdomen was distended with ascites and she was unable to breathe except in the sitting posture. The action of the heart was found to be frequent and irregular. On the day after admission to the hospital the abdomen was tapped and five pints of fluid were withdrawn; she was again tapped on two subsequent occasions and a similar quantity of fluid was removed. It was evident, however, that a large amount of fluid was left on each occasion and the relief afforded was only slight. It again became necessary to tap the patient owing to great respiratory difficulty, and on this occasion, as the patient was exceedingly nervous about the operation, it was decided to give her an anæsthetic so that a larger trocar might be used and greater relief afforded. Owing to the unsatisfactory condition of the breathing and circulation, however, the anæsthetist called in almost refused to give any general anæsthetic, but after some consideration consented and selected ethyl chloride. Between two and a half and three cubic centimetres were administered by means of Luke's inhaler, care being taken to avoid air deprivation. The patient, though obviously very nervous, breathed freely and was anæsthetised in about 15 seconds. The mask was withdrawn and the operation was begun. At this time the patient was breathing well though she was somewhat rigid and cyanosed; a medical man who had his finger on the pulse, however, said that he could not feel it. At the same time the breathing stopped and the patient from that time onwards never made any voluntary effort to breathe. Artificial respiration was zealously carried out for an hour or more, the external jugular was opened, and hot cloths were placed over the præcordia but quite without any effect. At the necropsy the heart and pericardium were completely

fused by dense adhesions; there was a considerable amount of endocarditis present, both old and recent. The liver, spleen, kidneys, &c., were in a condition of passive congestion.

CASE 8.—The patient was a stout, alcoholic woman, aged 50 years. She was suffering from cellulitis of the hand and forearm and it was necessary to remove a ring from her finger as it was cutting deeply into the tissues. Six cubic centimetres of ethyl chloride were administered in a modified Ormsby inhaler, the patient being in the semi-recumbent position. Anæsthesia was quietly induced and the mask was removed. Spasmodic twitching of the head and eyes towards the right was now noticed, passing off quickly on the approach of consciousness. The mask was again applied but no more ethyl chloride was added. A few seconds after its removal for the second time the breathing, which up to then had been easy and unembarrassed, suddenly stopped and the pulse was found to have disappeared. Artificial respiration was persisted in for upwards of half an hour but was unavailing, no cardiac impulse being again detected. At the necropsy (which was performed 48 hours later) a marked pallor was noticeable in all the viscera. The heart was empty, the left ventricle was very thin, and the liver was large and fatty. The stomach was greatly dilated and both kidneys were cirrhotic.

CASE 9.—The patient was a woman, 40 years of age, with good general health and somewhat stout in appearance. She had once had a fainting fit and occasionally palpitation. Ethyl chloride, or rather somnoform, was given for the extraction of some 17 teeth. After seven teeth had been extracted the patient's breathing was noticed to be very shallow and then ceased altogether. Immediately restorative measures were applied, including artificial respiration, oxygen, strychnine, and galvanism, but the woman never made any attempt to breathe again, although the pulse did not cease for some time after the breathing had stopped. At the necropsy the heart was found to be "covered with an accumulation of fat."

CASE 10.—A boy, aged 14 years, was admitted to the Royal Albert Hospital, Devonport, suffering from an injured finger and while in the hospital he was found to have adenoids. In order that they might be removed he was put under ethyl chloride and a very brief anæsthesia of about half a minute was induced. Just as the patient was regaining consciousness he suddenly turned pale and both pulse and respiration ceased immediately. All restorative measures proved futile. At the inquest death was stated to be due to cardiac syncope.

CASE 11.—The patient, a female, aged 50 years, went to a dentist to get two or three teeth extracted. She had previously been warned by her medical man on no account to have an anæsthetic at any time if she could possibly help it, as she had recently had two attacks of pneumonia and her heart was very asthenic. She was put under ethyl chloride by the dentist's assistant, who had a medical qualification, and died in a few moments before any teeth had been removed. At the necropsy no signs as to the actual causation of death were to be noticed but a muscularly asthenic heart.

CASE 12.—A man, aged 30 years, was being "put under" with ethyl chloride prior to the administration of chloroform for the removal of a malignant growth. Before the change to chloroform was made, however, the breathing and pulse suddenly ceased and death occurred. At the necropsy extensive malignant growths were found throughout the body.

CASE 13.—The patient, aged 20 years, was admitted to a large general hospital for anæmia and bad teeth. There was no evidence of cardiac disease. She was put into a dental chair and anæsthetised by means of five cubic centimetres of ethyl chloride. Five teeth were drawn, when without any change of colour or sign of respiratory obstruction, both pulse and respiration ceased. Artificial respiration was of no avail. The patient had been properly prepared for an anæsthetic. No post-mortem examination was allowed.

CASE 14.—The patient was a married women, 50 years of age—"a soaker." There was no evidence of heart disease. She was suffering from a suppurating bursitis in the elbow. An anæsthetic was administered in the out-patient department with the patient in the supine position, three cubic centimetres of ethyl chloride being used. She went under all right but with a good deal of struggling. The mask was removed and the arm was incised; the bursa was scraped out and dressed. Just as the bandage was being applied the patient moved and began to breathe deeply when suddenly the pulse and breathing stopped and she died, all restorative measures being useless. At least one and a half minutes had elapsed since the mask was removed when the breathing stopped. The patient had moved slightly both when the incision was being extended and the bandage was fixed. At the necropsy the right ventricle of the heart was found to be very fatty and at one place no muscle fibre could be seen. The left ventricle was hypertrophied but not dilated; the coronary arteries were patent. There was an old tuberculous patch in both lungs; the liver was in a nutmeg condition and the kidneys were granular.

CASE 15.—The patient, a man, aged 67 years, went to a dentist to have three or four teeth extracted. Ethyl chloride was administered to him for this purpose by the brother of the dentist who was a fully qualified medical man. It is said that about five cubic centimetres of the drug were administered; it may be presumed by a close method, but this is not stated. Anæsthesia was induced and three teeth were extracted and the fourth was just being removed when the patient suddenly turned very pale and died almost at once. The ordinary restorative measures were applied but without avail. A necropsy was allowed and carried out by a competent pathologist who found that the heart was in a condition of fatty degeneration. At the inquest the jury returned a verdict in accordance with the medical evidence and no blame was attached to the medical man responsible for the anæsthesia.

CASE 16.—The patient was a robust adult male who required to have some teeth extracted. The dentist he consulted gave him the option of nitrous oxide or chloroform but the patient refused both and the dentist finally elected to administer ethyl chloride himself, no assistant being present. Anæsthesia was induced and several teeth were extracted when the patient suddenly made an attempt to vomit and then stopped breathing. The tongue was drawn out and artificial respiration was carried on but without any good result. A tracheotomy was not attempted. At the necropsy no foreign matter causing obstruction of the airway was found in the larynx or trachea. Both lungs and throat, however, were in a state of chronic inflammation. The patient is said to have had "chronic inflammation of his throat for many years," possibly due to the excessive use of tobacco.

CASE 17.—The patient, a seaman in the Royal Navy, went to Haslar Hospital to have the stumps of several teeth extracted. He was examined by the surgeon on duty and pronounced fit for the anæsthetic. Ethyl chloride was administered to the establishment of full anæsthesia and the teeth were extracted, the man regained consciousness, but in three minutes he suddenly collapsed and died. All restorative measures were useless. At the necropsy the lungs were found to be congested and the heart empty.

CASE 18.—A death occurred recently at a Leeds dispensary.

CASE 19.—A death has occurred at Llandudno (dental case).

CASE 20.—A death has occurred at Swansea (dental case).

CASES 21 and 22.—Two deaths occurred recently at the Civil Hospital, Mustapha, Algiers.

Remarks and conclusions on the cases.—One is struck by the fact that some of the cases recorded above were very bad subjects for *any* anæsthetic—e.g., Nos. 1, 6, 8, 11, and 14. Again, several of them might, with a very much greater degree of safety, have been negotiated with chloroform or a mixture containing it on an open inhaler rather than with ethyl chloride. For instance, no anæsthetist of experience and sound judgment would have considered it good practice to anæsthetise Cases 2 and 6 with ethyl chloride—in a closed or even semi-closed inhaler at any rate, and the necropsy in Case 5 showed this to be equally unsuitable. Nitrous oxide would have been equally lethal in the circumstances. In Cases 3, 5, 6, and 16 death was obviously due to asphyxia, and in Case 5 at least death could have been avoided by more prompt action. The most unsatisfactory cases from the point of view of the safety of ethyl chloride are 4, 10, and 17. Here we have three patients whose organs were in a healthy condition, who had no alcoholic history and suffered from no constitutional dyscrasia, dying from syncope of just that very sudden and unpreventable character which we have been wont to look for in a certain percentage of chloroform cases. It is noteworthy that *out of these 22 fatal cases no less than eight occurred during dental operations.*

What is the approximate death-rate under ethyl chloride?

In 1902 Seitz of Constanz endeavoured, with the material then available, to establish the relative mortality under ethyl chloride, and investigated something like 16 000 cases, chiefly on the continent, and he found that up to that time only one fatality had been recorded (that of Lotheissen) and he accordingly fixed the death rate at 1 in 16,000. I may endeavour at the present time to make a rough estimate of the mortality as follows. There are some 35,000 medical and dental practitioners in the United Kingdom at the present moment. One may safely assume that during the past three years at least one-seventh, or 5000, of these have been using ethyl chloride pretty constantly, probably not less often than once in every ten working days—that is to say, that each of them has given ethyl chloride about 30 times per annum on the average, which will amount to 150,000 administrations per annum for the whole profession, or 450,000 for the three years. I find that out of the above list of fatalities 17 occurred in the United Kingdom, so that with these data the mortality works out at 1 in 36 000 approximately, upon which basis ethyl chloride compares very favourably with ether and chloroform. It is almost certain, however, that there have been considerably more than these 22 deaths which have come to light, but even if I were to find on continued inquiry that there were as many as three times the number (and this is rather unlikely) I should still only have a death-rate of 1 in 8000, and the fact remains that ethyl chloride is a *comparatively* safe anæsthetic agent, certainly much safer than chloroform for short operations.

If we except the extraction of teeth, there is probably no operation for which ethyl chloride has been more frequently employed than that for the removal of adenoid growths of the naso-pharynx. In the throat department of the Royal Infirmary, Edinburgh, alone it has been administered on upwards of 1500 occasions without a mishap. And out of the fatal cases above recorded we have only one occurring when the anæsthetic was given for this particular operation. In this case the administrator was a student who had practically no experience of anæsthetics and the operator was a house surgeon who had performed this operation only on half a dozen previous occasions. On examination of chloroform statistics we find that the number of fatalities which have occurred under this drug when used for adenoid operations is very great, and during the decade 1890–1900 no less than 100 such deaths occurred (Chaldecott). This is surely a strong argument for the employment of ethyl chloride and the avoidance of chloroform in operations for the removal of adenoids and tonsils.

As regards *personal experience* I have now administered ethyl chloride to all classes of patients on considerably over 2000 occasions and have been happy in not seeing a single fatality, and indeed nothing worse than two cases of temporary respiratory arrest with considerable cyanosis and very widely dilated pupils. One of these cases was sufficiently alarming and demanded immediate and careful treatment, and such cases, quite apart from actual deaths, make it quite plain that no one should undertake the administration of ethyl chloride at any time unless he is prepared and quite qualified to deal with an anæsthetic emergency. The dangerous symptoms come on with a rapidity not exceeded by the onset of troubles in chloroform anæsthesia. Ethyl chloride is most essentially not an anæsthetic to be administered, as it has been in the past, haphazard, according to the "instructions for use" provided with a new inhaler by the enterprising instrument maker or druggist. In dental work it is best not to give ethyl chloride *alone* but either to give it in mixture with nitrous oxide for short cases, in *small* doses of from two and a half to four cubic centimetres, or in sequence with ether for the longer cases.

In my opinion the "boom" in ethyl chloride is well-nigh at an end, but while the publication of such a list of deaths as is recorded above may well discourage the promiscuous and irresponsible use of a highly toxic and very rapidly acting anæsthetic, yet one would hope that ethyl chloride will not be unduly discredited or sink into comparative desuetude; it should rather take its proper place as a valuable addition to the anæsthetist's armamentarium for properly selected and suitable cases. The fact, however, that any unregistered dentist, any L.D.S. diplomate, can administer such a drug without let or hindrance under the impression that it is a sort of "glorified nitrous oxide" to any or all of his confiding patients constitutes a public danger which cannot be ignored.

Bibliography.—1. Münchener Medicinische Wochenschrift, No. 18, 1900. 2. Correspondenzblatt für Schweizer Aerzte, Band xxxii., No. 19. 3. American Journal of the Medical Sciences, December, 1903. 4. Transactions of the Society of Anæsthetists, vol. vii., pp. 91, 99, 104, 119. 5. Brit. Med. Jour., July 8th, 1905. 6. Journal of British Dental Science, April, 1904. 7. General Practitioner, August 19th, 1905. 8. Brit. Med. Jour., March 3rd, 1906. 9. THE LANCET, Oct. 7th, 1905, p. 1023. 10. Deutsche Monatschrift für Zahnheilkunde, X. Jahrgang, 1902. Edinburgh.

ON PRIMARY CARIES OF THE MASTOID PROCESS AS A CAUSE OF MASTOID ABSCESS IN YOUNG CHILDREN.

BY LEONARD P. GAMGEE, F.R.C.S. ENG.,
ASSISTANT SURGEON TO THE GENERAL HOSPITAL, BIRMINGHAM; SURGEON TO THE CHILDREN'S HOSPITAL, BIRMINGHAM.

IN young children a form of mastoid abscess not uncommonly occurs without the pre-existence of any discharge from the external auditory meatus and without the presence of any perforation of, or scar on, the membrana tympani. Such was the character of the abscess in ten out of 61 cases of mastoid abscess in children under 15 years of age operated upon by me. These ten cases had the following characteristics in common:—1. In each case the patient was an infant or quite a young child, the youngest being six months old and the eldest seven years. 2. There was no history of otorrhœa, nor did any discharge from the auditory meatus appear during the course of the case. 3. There was no perforation of the membrana tympani visible. 4. The abscess formed slowly, in some cases a month elapsing between the first appearance of the swelling and the first attendance of the patient at hospital. 5 There was a marked absence of pain. 6. The auricle was not displaced downwards and outwards as in the ordinary form of mastoid abscess resulting from suppurative otitis media. 7. There was no elevation of temperature. 8. There was very extensive destruction of bone; but, in spite of this, there were no symptoms of intracranial complications. As an example the following case may be quoted.

CASE 1.—The patient, a boy, aged one year and nine months, was first seen on Dec. 16th, 1898. There was present over the right mastoid process a fluctuating swelling, which had been gradually forming for three weeks. The mother stated that the child had apparently not been in pain and that there had never at any time of his life been any discharge from the external auditory meatus. When admitted into hospital the patient had a normal temperature, the ear was not displaced, and there was no bulging or perforation of the membrana tympani. The child looked in good health and there were no symptoms of any intracranial complications. The abscess was opened and a patch of carious bone was seen on the mastoid process, its exact situation being a point just behind the supra-meatal triangle, in other words, about the centre of the line of the masto-squamosal suture. The carious bone was scraped away and the sinus so formed was found to lead into the interior of the mastoid. It was found that the outer shell only of the mastoid was intact, the rest of the process being carious and in its centre was a sequestrum half an inch square, evidently the result of caries necrotica. The outer shell of the mastoid was cut away and the carious bone in its interior was scraped away, the resulting cavity being three-quarters of an inch deep, the caries having extended into the petrous bone. The wound healed soundly. The patient was last seen 11 months after the operation. The membrana tympani was then unperforated and there had been no otorrhœa.

This was the only case among the ten in which there was an actual sequestrum, but in all the amount of bone destruction was great, in several the sinus groove being opened and the dura matèr over the upper surface of the petrous bone exposed. The explanation usually given of the occurrence of this kind of mastoid abscess is that there has been, in the first instance, tuberculous disease of the middle ear and that the disease has spread to the antrum, so causing the mastoid abscess, the membrana tympani remaining intact all the time. But, bearing in mind the mode of ossification of the temporal bone and studying the details of the two cases given below, it becomes manifest that the variety of mastoid abscess under discussion may be due to primary caries of

the mastoid process without any involvement of the middle ear. There are eight centres of ossification in the temporal bone, one for the squamous, two for the styloid process, one for the tympanic ring, and four for the petro-mastoid portion. These centres have nearly coalesced about the fifth month of intra-uterine life, but during the remainder of fœtal life the squamous is easily separable by maceration from the petro-mastoid. During the first few years of life also the petro-mastoid and the masto-squamosal sutures are more vascular than the rest of the bone and separation by maceration is occasionally possible. On the outside of the skull of a newly born infant the masto-squamosal line of suture can easily be detected. It commences at the point of junction of the mastoid, parietal, and squamous bones, and then passes downwards and forwards, making with the posterior root of the zygoma an angle of about 45 degrees, until it reaches a point in a line horizontally with the centre of the outlet of the bony meatus—that is, the apex of the supra-meatal triangle. From that point the line drops vertically downwards to the lower surface of the bone. On the inner surface of the infant skull the line of the petro-squamosal suture can be distinctly seen running along the junction of the petrous with the squamous. When a fœtal temporal bone is macerated and the squamous is separated from the petro-mastoid it will be seen that the outer wall of the mastoid antrum is formed by the descending plate of the squamous, and that nearly one-third of the masto-squamosal suture line is above, and posterior to, the mastoid antrum. Thus, the line of the masto-squamosal suture can be divided into two parts: (1) an upper part which is above and behind the antrum; and (2) a lower, most of which runs along the posterior border of the descending plate of the squamous—i.e., along the posterior border of the outer wall of the antrum. The point on which stress is to be laid is this—viz., that if a spot of caries occurs along the line in portion (1) it is possible for a perforation exposing the dura mater of the middle fossa to occur without the mastoid antrum being opened up. Two cases which have been under my care illustrate the importance of this point.

CASE 2.—The patient, a boy, aged six years, was admitted into the Birmingham Children's Hospital on May 27th, 1900, complaining of the presence of a swelling over the right mastoid process. In this position was a soft, fluctuating swelling with the skin just becoming red. The history given was that the patient had never had ear-ache or any discharge from the ear and that the swelling had been forming for the past three to four weeks. The membrana tympani on examination appeared quite normal, there being no bulging, perforation, or visible scar. There was no displacement of the auricle. The patient's temperature was normal and he complained of no pain beyond a little tenderness on pressure over the swelling. On June 1st the swelling was incised and proved to contain pus. In a position corresponding to the extreme upper end of the masto-squamosal line was a patch of carious bone of about the size of a split pea. This was scraped away and a sinus was found to perforate through so as to expose the dura mater of the middle cranial fossa. The remainder of the surface of the mastoid and of the descending plate of the squamous appeared quite healthy and so the antrum was not opened. The wound was packed and healed satisfactorily, there never being at any time a discharge from the auditory meatus.

CASE 3.—The patient, a girl, aged five years, was admitted into the Children's Hospital, Birmingham, on Nov. 13th, 1900, complaining of a swelling over the right mastoid which had been forming for three weeks. There had never been any otorrhœa and there had been no complaints of pain. The membrana tympani appeared to be normal. During the next three days the patient's temperature varied from 98·6° to 99·5° F. There was no displacement of the auricle. On Nov. 16th the abscess was opened. At the upper border of the mastoid, just in the position of the upper end of the line of the masto-squamosal suture, was a small patch of carious bone. This was scraped and was found to penetrate almost, but not quite, through to the dura mater. The remainder of the mastoid process appeared to be perfectly healthy. The wound was packed and rapidly filled up.

Here, then, were two cases of what may be called "quiet mastoid abscess," in which the abscess was clearly due to the formation of a patch of caries, presumably tuberculous, in the exact position of the upper part of the masto-squamosal line; in that part of the line, in other words, which has on its deep surface the dura mater of the middle fossa and which is altogether above and behind the position of the mastoid antrum. Had this patch of caries occurred a little lower down in the course of the masto-squamosal line, then, when perforation of the bone took place, the antrum would have been opened up and it would then have been impossible to say whether the disease began as a tuberculous otitis media, which led to secondary caries of the mastoid process, or as a primary caries of the mastoid process which had perforated through the masto-squamosal line into the antrum. In fact, Cases 2 and 3 appear to give the clue to the morbid anatomy of this class of mastoid abscess.

From a study of these cases it seems justifiable to draw the following conclusions: 1. That in young children a form of mastoid abscess not uncommonly occurs (in 10 out of 61 cases) in which there is no history of otorrhœa and in which the membrana tympani appears to be normal. 2. That in these cases the abscess is of slow and painless formation, the patient's temperature not being raised and the ear not being displaced. 3. That in these cases the abscess is due to primary caries of the mastoid, the patch of caries occurring somewhere along the line of the masto-squamosal suture, this being in a young child the softest and most vascular portion of the bone. 4. That if the patch of caries forms in the upper part of the masto-squamosal line and if perforation of the bone occurs the dura mater of the middle cranial fossa is exposed and the mastoid antrum is not opened up. 5. That if the patch of caries occurs in the middle or lower part of the masto-squamosal line the antrum is quickly opened up and then the caries spreads rapidly through the mastoid.

When the patch of caries is found to be situated in the upper part of the masto-squamosal line and the rest of the mastoid is healthy, then it can be taken that the abscess was caused by a primary caries of the mastoid. When, however, the patch of caries is found to be situated in the middle or lower part of the masto-squamosal line—i.e., in that part which runs along the posterior boundary of the supra-meatal triangle—it must remain uncertain whether the abscess is due to primary caries of the mastoid or to tuberculous inflammation of the middle-ear. But, reasoning by analogy, it seems at all events probable that mastoid abscesses of this class have a common origin—viz., in caries of the mastoid process; that the patch of caries occurs nearly always along the line of the masto-squamosal suture and that whether the mastoid antrum is opened up or not depends upon the exact position in the line of the suture at which the caries occurs.

Birmingham.

OBSCURE CEREBRAL MANIFESTATIONS OF TUBERCULOSIS.

NOTES ON THREE CASES.

BY J. FORTUNE, M.B., CH B. EDIN.,
ASSISTANT MEDICAL OFFICER, DEVON COUNTY ASYLUM.

THERE are few diseases which do not appreciably upset the intricate mechanism of the nervous system, but it is surprising in how few the disturbance is betrayed by prominent symptoms or remains a permanent one. It is not perhaps so surprising to observe in how many different forms the disturbance is manifested. The following notes on two cases in which the cerebral symptoms were the most urgent and in which post mortem lesions of tuberculosis were apparent will serve to show, however, the difficulty of tracing these disorders to their proper source, while Case 3 may serve to accentuate the diversity that occurs. Tuberculosis, even when confined to one organ, may appear in the most divergent forms, and when diffused the unity of the disease may not always be determined. It is similar in its secondary effects on the nervous system. So often has the unreasoning hopefulness accompanied the progress of the lung affection that the "spes phthisica" has come to be regarded as characteristic. In phthisical insanity, again, the variableness of mind, the unsocialness, or irritability with suspicion, even at times monomania, have all appeared and been regarded as symptomatic. Indeed, the insanity has been stated to begin usually before any marked symptoms of pulmonary tuberculosis appear,[1] and this may account for

[1] Clouston: Mental Diseases.

the assertion that it has not been shown that more than an average number of phthisical patients become insane (Hector Mackenzie) and may be very suggestive in the consideration of Case 1. Thus much for the lungs.

Disease of the adrenal glands is usually accompanied by nervous symptoms, the chief mental ones being apathy and depression,[2] but the mind remains clear unless coma or delirium supervenes.[3] Other symptoms, such as prostration after exertion and disinclination for exercise, may be common to pulmonary tuberculosis and Addison's disease, where both exist in the same individual. In the following case the existence of suprarenal disease was undetected during the life of the patient, the severity of the symptoms of the lung affection completely overshadowing any sign which might have suggested an additional focus of disease.

CASE 1.—The patient, a male, was first admitted on Oct. 8th, 1898. His family and personal history was negative as to pulmonary tuberculosis and alcohol, but a maternal uncle had died in an asylum. He said that he had some complaint which prevented him from working and thought it was due to someone "illwishing" him. He had attempted suicide. Physical examination revealed no evidence of disease save that the first sound of the heart was slightly rough in character and the pulse was 90. He was dejected and depressed but answered all questions readily and rationally, had a good memory, and realised his position. He was discharged recovered on June 6th, 1899. He was readmitted on Jan. 30th, 1902. His certificate again showed that he asserted himself to be suffering from an internal and incurable disease and had threatened to do away with himself. The pulse on this occasion was found to be 89 and of high tension; the heart was as before, but no trace of organic disease could be discovered. He exhibited good health and his melancholic symptoms seemed to be disappearing until the beginning of 1905 when he became very distressed, saying that he could not live. Examination of his chest in January showed the presence of consolidation in the apex of the left lung, and in February there were all the physical signs of a cavity. He began to lose weight, became anæmic and emaciated, had gastric irritability, and an uneven temperature. His pulse became feeble and he had copious night sweats and died on June 16th, 1905. He was never observed to cough during the whole course of his illness. His age at death was 52 years.

The necropsy revealed a large cavity in the left lung, which was full of pus and over two inches in diameter. Chronic pleuritic adhesions were present and the smaller bronchial tubes were choked with purulent material, most of the lung being in a state of consolidation. The weight of the organ was 60½ ounces. The heart was small, the muscle being soft, but the valves were competent. The spleen was soft and friable and the kidneys were apparently normal. The suprarenal gland of the right side was firmly attached to the kidney; that of the left was separate from its kidney and surrounded by a separate envelopment. Both suprarenals were enlarged, each weighing two and a quarter ounces, and in parts were fibrous and cartilaginous in feeling to the finger and gritty to the knife, other parts being studded with cysts which exuded a colloid material and cavities full of thick caseous pus, the left—i.e., on the same side as the affected lung—showing an abscess one inch in diameter. The liver was waxy. The brain was œdematous with distended ventricles. There was no anasarca, no pigmentation of the skin, no leucoderma, or deepening of the natural pigmentation in the usual sites. The hair showed no bronzing. There was a patchy, purple discolouration of the mucous membrane of the upper lip and of the gum of the upper jaw at its junction with the teeth, but no deposit of pigment on the tongue, the palate, or the lower lip.

There are several features of interest that rather tempt speculation as to the connexion between the mental state and the physical conditions. Was the lung affection previous to the suprarenal or *vice versâ*? Was the mental disorder secondary to the suprarenal? In the order of appearance by outward symptoms the melancholia was succeeded by the pulmonary tuberculosis and the latter had cut short the life of the patient and presumably the outward exhibition of the disease of the adrenal bodies. But these glands could hardly have been more diseased than they were and the patient's lungs were healthy till within a year of his death. His melancholia was a recurrence of a previous attack and was certainly previous to the pulmonary tuberculosis. Heredity is important in phthisical insanity and in cases of the latter an inherited tendency to insanity can usually be traced (Clouston). Is it that though the insanity appears before the pulmonary tuberculosis there is already a focus of the disease in the patient, though undiscoverable? Or can the depression of Addison's disease in a predisposed patient go on to insanity? One case with melancholia has been observed by Dr. Rutherford Macphail. While again drawing attention to the patient's main "delusion" I leave the discussion to abler judges.

CASE 2.—The patient, a male, aged 50 years, was admitted on March 31st, 1904. He was confused and semi-stuporose. He had been subject to epileptic fits for "some months." The pupils were contracted. The gait was shuffling and Romberg's sign was present. There was slight albuminuria. The breath sounds were normal. He remained dull and apathetic and suffered from nocturnal epileptic fits, crying out before them and falling or rolling over to the left. He was irritable occasionally. He was able to do outdoor work, his fits averaging 16 per month. In October, 1905, he had a succession of fits which left him feeble and stuporose. Bromide of sodium in 30-grain doses reduced the fits considerably but he died after several severe fits on Dec. 16th, 1905. He vomited once on the 15th.

Post mortem caseous nodules were found in both apices and in the bronchial glands. Miliary tubercles were found in the liver. No other organ with the exception of the brain was found to be affected to the naked eye. In the latter a curious condition presented itself. On running the hand over the cortex hard patches were felt where the pia mater was firmly attached. In the grey matter under, the cortex was firm and tough and fibrous in feeling. These scar-like nodules were less than pea-sized and in the cerebrum of each side but not in the frontal lobes, six such spots being on the right side and four on the left. In addition, in the cortex of the right occipital lobe a cyst with tough walls and containing caseous granules was found. The cyst was a quarter of an inch in diameter. None of these cortical nodules was encapsuled or easy to separate from the surrounding grey matter. In both lateral ventricles the ependyma was granular and small calcareous nodules of the size of a hemp-seed were found. In the left lobe of the cerebellum the white matter was firm and difficult to tear and the grey matter was almost non-existent. The white matter was contracted and gritty on section. Here one finds very suggestive signs. Slow-growing tumours are not rarely found in the brains of epileptic dements (Mott) and these during life may give rise to symptoms very like idiopathic epilepsy (Oppenheim, Mott). Small fibrous areas are occasionally found post mortem (Shennan) as if a tuberculous lesion had become quiescent. And tumours of the cerebellum (Mott) and of the parieto-occipital region (Risien Russell) may grow to a considerable size without evidencing focal symptoms. In cerebellar atrophy (Russell) epileptic convulsions are not rare and if a tuberculous seat in the cerebral convolutions contract and dry up it may cause epileptic attacks (Cotterill). That the last was the cause of the epilepsy and that affection of the cerebellum accounted for the fall to the left and the disturbance of gait is quite possible.

CASE 3.—A male, aged 25 years, was admitted on March 14th, 1905, suffering from acute delirious mania. There was a family history of pulmonary tuberculosis and the patient had been under treatment for the same disease in a sanatorium and been discharged cured. It was impossible to examine him properly but a cavity was found in the left lung. He remained violent and delirious till his death on March 17th. Post-mortem examination confirmed the diagnosis of a cavity, most of the remaining part of the lung being consolidated.

Here, on the basis that a toxæmia is the cause of this form of insanity, one must presume that mixed infection had occurred. Many are the causes assigned to this disease, quite as many, in fact, as to all diseases not known to be due to a specific organism, and pulmonary tuberculosis is in this array.[4] And whatever the cause may have been in this case, it is at least certain that the delirious mania occurred during the course of the disease.

In reviewing the records of these three cases I am aware

[2] Stockman: Text-book of Medicine, edited by Gibson.
[3] Relleston: Encyclopædia Medica.
[4] Blandford: Insanity and its Treatment.

of the objections that occur to classifying them as manifestations of the same disorder. They have only one feature in common—that tuberculous lesions existed and were found post mortem. In Case 2 only were those exhibited in the brain and there the symptoms in reference to it were physical rather than psychical. Phthisical insanity is a distinct disease and embraces none of these cases, which in relation to mental symptoms were classified as melancholia, epileptic insanity, and delirious mania respectively. But it is easy to push the *post hoc, ergo propter hoc*, too far, and it is a known fact that more insane than sane patients die from tuberculosis. Nevertheless, Case 3 had pulmonary tuberculosis before he became insane; Case 2 had tuberculous lesions before he developed the epilepsy which brought the mental symptoms in its train; and Case 1 very probably had Addison's disease while in a state of sanity. They are all illustrative of the benefit derived from post-mortem examination, even where the diagnosis seems perfectly clear. Without such procedure Cases 1 and 2 would have been put down as examples of acute pneumonic phthisis and of ordinary major epilepsy. They each present interesting and debatable features and apart from their suggestiveness they seem, from their intrinsic interest alone, worthy of record.

Exminster.

A SUCCESSFUL CASE OF EPIPLOPEXY FOR CIRRHOSIS OF THE LIVER WITH ASCITES.

BY T. K. MONRO, M.A., M.D. GLASG., F.F.P.S. GLASG.,
PHYSICIAN TO THE GLASGOW ROYAL INFIRMARY AND PROFESSOR OF MEDICINE AT ST. MUNGO'S COLLEGE;

AND

A. N. McGREGOR, M.D. GLASG., F.F.P.S. GLASG.,
ASSISTANT SURGEON AT THE GLASGOW ROYAL INFIRMARY.

AT the present time, when surgical procedures for the relief of some of the symptoms of hepatic cirrhosis are being so much discussed, the following case is interesting and its publication may be of value as an item among the many observations necessary to a thorough appreciation of the value of such operations, their scope, and their limitations.

The patient, a man, aged 40 years, was successfully treated by Dr. F. V. Adams in the later months of 1904 for nasal obstruction resulting from enlargement of the turbinates. One day in January, 1905, while feeling perfectly well and walking in the street, he was seized with sickness and vomited blood, after which he fainted for a second or so and fell on his knees. He went home to bed and by the next day seemed all right again and was able to go out. After this he remained to all appearance perfectly healthy until July 10th, 1905, when he was on holiday in Ireland. After a cup of tea at breakfast that morning he felt sick, vomited blood, and fainted slightly, exactly as on the previous occasion. He was kept in bed for a week this time and was fed by the rectum. He has had no other attack of this kind and he can suggest no cause for either of the two attacks. His previous health had always been excellent, apart from slight bilious attacks which he attributed to confinement and want of exercise. He had no cough. He could take any kind of food, his bowels were regular, and he did not suffer from piles. He lost about 10 pounds in weight during the week of rectal feeding but appeared to regain this afterwards. According to his own statement, which is corroborated by his friends, he was always moderate in the use of alcohol. About a bottle of beer at supper was the extent of his indulgence. He never took beer in the day-time and he took no spirits at any time. After the first hæmorrhage, which has been described, the stools were black for a time but there were no stomach symptoms. After the second attack the stools were again black for a time, but, in addition, he began to suffer from abdominal pain when he had been in bed for a few days; and, after a few more days, when he began to take food by the mouth he became troubled with distension. The pain, though constantly present, was never very severe but on the whole it tended to get worse as time went on. It did not seem to be related to the taking of food but it was aggravated by pressure and kept him from lying on either side. At the same time his general health remained good.

When the patient was seen on July 27th it was noted that the abdomen was greatly distended. The signs pointed to ascites with flatulent distension of the stomach. There was tenderness at the right lower costal margin, just to the right of the xiphoid, but nothing abnormal was palpated there. The liver could not be felt. Examination of the rectum gave negative results. The lymph glands in the right axilla were somewhat large but those in the other accessible parts were normal. The heart and the urine were normal. Some crackles were heard at the posterior bases but otherwise the lungs were normal. On August 4th, in St. Elizabeth's Nursing Home, the abdomen was tapped and after the ascitic fluid was evacuated the stomach was distended with carbon dioxide, with the result that no great dilatation was found. There was still tenderness in the right hypochondrium.

Operation.—On the 8th the abdomen was opened in the middle line above the umbilicus; a quantity of ascitic fluid was evacuated and there was found cirrhosis of the liver and also an adhesion of the pyloric end of the stomach to the under surface of the liver. No tumour was found in the liver, portal fissure, pancreas, hepatic or splenic flexure of the colon, or pylorus. The stomach was healthy except for some dilatation of the veins. The omentum was then spread out and sutured by means of a fine, continuous, catgut suture to the peritoneal surface of the anterior abdominal wall, first on one side of the incision and then on the other side. There were three rows of sutures on each side. In closing the abdominal wall the first layer of sutures was passed through the transversalis fascia and peritoneum and the omentum was picked up with the needle as it passed from one side of the wound to the other, so that the omentum was attached by seven rows of suture. The rest of the abdominal wound was closed in two layers. The after-history of the patient was uneventful, the wound being healed when it was dressed a week after the operation. He went home on the 23rd—the fifteenth day—and a week later he was allowed to go to the coast for change of air. After a month's holiday he resumed work and he has continued at his occupation without interruption until the present time.

At this date,[1] eight months after the operation, inspection of the abdomen shows a dilated vein, the superficial epigastric, extending from near the umbilical end of the cicatrix to the left groin. No other venous dilatations are observed and the abdominal wall is otherwise normal. No ascitic fluid can be detected in the abdomen and no abnormalities are observed on palpation or percussion.

One of us (T. K. M.) examined the patient on April 2nd and made the following note of his condition: "Mr. —— called this afternoon and expressed himself as perfectly well, being indeed brighter and altogether better than he has been for the last 15 years. He has been a total abstainer since he was in St. Elizabeth's Home. The only symptom he has had since the operation was melæna. This happened once, about two months ago, and if he had not noticed the stools black he would not have known that anything had happened. He attributed it to running for a train or to a twist when he was scrubbing himself in the bath. The liver is reduced in size and there is no tenderness in the right hypochondrium. The spleen is sufficiently enlarged to be easily felt on inspiration. The heart is normal. I note the enlarged superficial epigastric vein running down to the left groin from the scar, near its lower end. There is a good current of blood in it flowing downwards."

The case is one of cirrhosis of the liver characterised by well-marked ascites, by hæmatemesis, and latterly by tenderness of the right hypochondrium, as well as by pain in that region. The condition of the liver was demonstrated by inspection. There are an absence of any serious alcoholic history and no suspicion of syphilis or of malarial or other toxic infection, and there are no tumours in the neighbourhood of the liver, spleen, pancreas, or colon. The operation was simply that of suture of the omentum to the anterior parietes, without rubbing or scraping of the surface of the liver, of the spleen, or of the parietal peritoneum; and, after a lapse of eight months, and with the solitary exception of a trivial hæmorrhage, evidenced only by melæna, the patient reported himself as quite well, and there is satisfactory evidence of a local increase in the venous circulation of the abdominal wall originating at the site of operation.

[1] The patient was shown at a meeting of the Glasgow Medico-Chirurgical Society on April 6th, 1906.

In the literature of the subject various claims are set forth in the matter of priority of the idea of producing an anastomosis between the portal and the systemic circulations, and it would serve no good purpose to discuss here the rival claims of those who have employed allied artifices to attain that end, but the names of Talma of Utrecht and Morison are so closely associated with the early publication of such procedures that they are likely to be accepted as distinctive. Although the surgical treatment of the circulatory difficulties in cirrhosis is of comparatively recent date there have already appeared many reports of operations and of different varieties of procedure, as well as conflicting estimates of the value of surgical interference. It is no matter for surprise that operations have been undertaken in cases that were unsuitable, both with reference to the ability of the patient to undergo any operation and with reference to the possibility of improvement in view of the condition of the liver itself or of other vital organs such as the heart and kidneys. For that reason the statistics, taken over all, are of little value unless there be given with each case sufficient information to enable a classification to be made.

It is necessary to know as definitely as possible the objects to be gained in order that the success of the result may be estimated. Osler sums up the prospects of the treatment very concisely when he states that "ordinary cirrhosis of the liver is an incurable disease. ..... So far as we have any knowledge, no remedies at our disposal can alter or remove the cicatricial connective tissue which constitutes the *materia peccans* in ordinary cirrhosis. On the other hand, we know that extreme grades of contraction of the liver persist for years without symptoms when the compensatory circulation exists." Frazier gives the maximum scope of the operation when he states that: "This operation purports to open another channel for the relief of the portal circulation. I say another channel because there already exists a more or less free collateral circulation between the systems of the portal vein and the inferior vena cava." He then indicates the natural channels of anastomosis, which are perhaps better given by Osler: "1. The accessory portal system of Sappey, of which important branches pass in the round ligament and suspensory ligaments and unite with the epigastric and mammary systems. These vessels are numerous and small. Occasionally a large single vein, which may attain the size of the little finger, passes from the hilus of the liver, follows the round ligament, and joins the epigastric veins at the navel. Although this has the position of the umbilical vein it is usually, as Sappey showed, a para-umbilical vein—that is, an enlarged vein by the side of the obliterated umbilical vessel. There may be produced about the navel a large bunch of varices, the so-called caput Medusæ. Other branches of this system occur in the gastro-epiploïc omentum, about the gall-bladder, and, most important of all, in the suspensory ligament. These latter form large branches, which anastomose freely with the diaphragmatic veins, and so unite with the vena azygos. 2. By the anastomosis between the œsophageal and the gastric veins. The veins at the lower end of the œsophagus may be enormously enlarged, producing varices which project on the mucous membrane. 3. The communications between the hæmorrhoidal and the inferior mesenteric veins. The freedom of communication in this direction is very variable and in some instances the hæmorrhoidal veins are not much enlarged. 4. The veins of Retzius which unite the radicles of the portal branches in the intestines and mesentery with the inferior vena cava and its branches. To this system belong the whole group of retro-peritoneal veins which are in most instances enormously enlarged, particularly about the kidneys, and which serve to carry off a considerable portion of the portal blood."

In the earlier operations advantage was taken of the proximity of the liver to the diaphragm, and the adjacent surfaces were rubbed so as to promote adhesion, and for a like purpose the spleen was similarly treated. More recently some surgeons have endeavoured to get the greatest amount of anastomosis by fixing a large portion of omentum in an extra-peritoneal pocket made in the anterior abdominal wall. The methods will be referred to later but these are mentioned now to indicate some of the varieties of procedure by which artificial anastomosis between the portal and systemic circulations may be obtained. It would be comparatively easy to suggest further methods of producing adhesions calculated to increase this anastomosis and it is not an unlikely suggestion that the cases of ascites in this disease, successfully treated by simple and prolonged drainage, owe their recovery to multiple adhesions and therefore multiple anastomoses.

If the whole question of surgical interference depended on the non-sufficiency of the natural collateral circulation the answer would be comparatively easy, for the occurrence of ascites, hæmatemesis, and epistaxis, with varices at the anus and umbilicus, and distended venules at the lower costal margins, &c., would indicate the need for assistance. It will be evident, however, that when the disease is so far advanced that the liver substance is mostly destroyed by the cicatrising connective tissue, operative measures for the relief of the portal circulation are too late; indeed, the occurrence of jaundice in this disease is generally held to bar surgical intervention. So, too, the presence of marked kidney or cardiac lesions is a decided objection. Some observers hold that the occurrence of hæmorrhage is a sign that the fibrotic changes in the liver are so far advanced as to negative surgical intervention. Bunge mentions as further contra-indications the presence of urobilin in the urine and pigmentation of the skin. That may be taken as a general statement of the limits of operative interference. Rolleston in referring to the bad effects which may result from excessive development of this venous anastomosis remarks that: "In the first place, if communications are extensive it necessarily follows that a considerable quantity of blood carrying the products of digestion will pass directly into the general circulation instead of passing through the liver. If the anastomosis is very free the condition would resemble that in Eck's fistula or the experimental communication between the inferior vena cava and the portal vein, which results in all the portal blood passing into the inferior vena cava." He refers to experiments carried out on these lines by Hahn, Nasse, Nencki, and Pawlow, in which effects equivalent to those of hepatic insufficiency resulted, and he quotes Stockton in support of a statement that excessive development of the collateral circulation may lead to a toxæmic condition verging on uræmia. Remarking that one of Morison's patients, "after an operation for the surgical relief of ascites, was alternately excited and depressed for three weeks," he suggests that possibly a very free anastomosis between the portal and general venous systems, while relieving portal engorgement may lead to arterio-sclerosis and granular kidneys." In the second place, hæmorrhage may take place from rupture of the dilated venous anastomosis, and he quotes some cases where a hæmatoma occurred in the anterior abdominal wall, near the middle line, in patients suffering from hepatic cirrhosis.

The advantages claimed for the operation are the relief of those symptoms which are directly due to the retardation of the portal circulation. In that category ascites and hæmatemesis may be regarded as the most prominent, while sickness, epistaxis, and hæmorrhoids occupy a position of secondary importance. These constitute the burden which the patient has to bear, and though no claim is made that the relief of the portal circulation will check the course of the disease, it is apparent from the number of cases on record that much relief is obtained, while in a number of instances complete cessation of the symptoms results. In an analysis of 14 cases collected by Frazier, and excluding those in which there was some error of technique or of diagnosis or in which the operation was contra-indicated, one patient was living but unimproved, one was slightly improved, and six were living and free from ascites at periods of 3, 4, 6, 24, 24, and 26 months respectively. Frazier believes that in properly selected cases, where the liver is cirrhotic, where there is reason to believe that the liver cells are not devoid of function, where internal medication and paracentesis fail to afford relief, and where there is no reasonable contra-indication, the operation has a future.

Rolleston (pp. 259–60), believing that the ascites is due to toxæmia, suggests that the beneficial effects of operative interference are due (1) to the reduction of the amount of blood passing through the liver diminishing the toxæmic condition of the blood by enabling that organ to deal more satisfactorily with the quantity of blood which does pass through; and (2) to the relief of vascular venous engorgement which permits of a better arterial supply, improves the nutrition of the liver cells, and so favours a compensatory hyperplasia. Harris goes further and believing that the ascites is not solely due to portal obstruction but also to chronic peritonitis resulting from the cirrhosis, suggests that

the operation should be performed, if possible, in the pre-ascitic stage. Bunge also advises this early interference and quotes Turner, Rolleston, and the later writings of Talma to the same end. Rolleston also advises early operation. After discussing the manner in which the operation may benefit the patient, he says (p. 260), "When cirrhosis can be diagnosed with fair certainty in the pre-ascitic stage and when there are evidences of the disease such as hæmatemesis and splenic enlargement, operative interference has a much better chance than in the late stages," and again (p. 261), "The earlier the operation is undertaken the better the chance of improvement, or even arrest, of the disease."

In consideration of the opinions of others and judging from the results in the present case it seems reasonable to hope that surgical interference will become more readily employed than heretofore and it is evident that the occurrence of hæmorrhages, and even severe hæmorrhages, is no barrier to operation but rather an indication for its use. The fact that the artificial anastomosis readily develops may be taken as a proof that portal obstruction is the main factor in the production of ascites as of hæmorrhages, notwithstanding the theory advanced by Harris, just quoted, that a chronic peritonitis is materially instrumental in its causation, and the toxæmic theory of Rolleston.

Referring briefly to the various methods of operating, it would seem that the greater the amount of anastomosis produced—*ceteris paribus*—the better should be the result. In the earlier operations means were taken to secure adhesion between the liver and diaphragm and fixation of the spleen, as well as suture of the mesentery to the abdominal wall. Bearing in mind that the patients are often seriously ill and that, particularly in cases of alcoholic origin, general anæsthetics are badly borne, it is evident that friction or curetting of the hepatic and diaphragmatic surfaces, insertion of a fold between them, and manipulation of the spleen cannot always be undertaken with reasonable safety. It is desirable, therefore, in the majority of cases, to select an operation which may be performed under a local anæsthetic. A simple suture of the omentum to the parietal peritoneum, such as was performed in this case, could readily be done with local anæsthesia, but the method described by Narath may not only be performed with Schleich's solution but seems to give a better result in a more speedy and more generous formation of compensatory circulation. The method consists in the formation of a subcutaneous pocket in the anterior abdominal wall and the insertion of a thick fold of omentum therein, care being taken that the suture of the abdominal wound is sufficient to prevent the occurrence of hernia but not enough to obstruct the circulation in the extruded omentum. Narath states that the skin around the wound becomes œdematous but that the tumefaction soon passes off and a ring of radially arranged venous radicles appears, sometimes as early as the second week. Describing the direction of the new venous flow, he mentions that of the superior epigastric to the femoral vein, the thoraco-epigastric to the lateral epigastric, and hence to the axillary vein, and one or more venous branches flowing upwards over the sternum and costal cartilages, with the remark that these mostly develop on the left side. No matter what operation is performed in the presence of ascites it cannot be expected that the fluid will cease to re-form until the collateral circulation has developed sufficiently to compensate. The insertion of a drainage-tube can hardly be recommended, though it formed part of the original operation, on account of the discomfort to the patient and the danger of septic infection, but relief may be given by one or more tappings should they be required. It may be mentioned also that the firm strapping of the abdomen is not now considered necessary. The operation performed in this case (*vide supra*) secured a broad area of contact between the omentum and the parietal peritoneum. It has the further advantages that it is easily and quickly performed; it may be done without general anæsthesia and there need be no impairment of the stability of the anterior abdominal wall.

In conclusion, it is submitted that in the simpler operations we have a means, comparatively free from risk, of alleviating the distressing symptoms of patients suffering from cirrhosis of the liver, and that such treatment should be undertaken in the early stages of the disease when possible, although it is not barred by the appearance of ascites or hæmorrhage. Admittedly useless in the last stages of the disease, when little glandular substance is left, when jaundice is present, and where renal or cardiac diseases complicate the condition, it is worthy of trial, even in well-marked cases, for the relief it sometimes affords.

Bibliography.—Bunge: Klinische Jahrbuch, vol. xiv., 1905. Frazier: American Journal of the Medical Sciences, vol. cxx., pp. 633, 666. Harris: Journal of the American Medical Association, May 8th, 1902. Narath: Centralblatt für Chirurgie, August 12th, 1905. Osler: Principles and Practice of Medicine, fourth edition, p. 576. Roe and Spencer: Philadelphia Medical Journal, March 1st, 1902. Rolleston: Diseases of the Liver, 1905. Sears and Lord: Boston Medical Journal, Sept. 11th, 1902. Weir: New York Medical Journal, Feb. 4th, 1899.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON A CASE OF PURULENT PERICARDITIS SIMULATING EMPYEMA.

BY BASIL ADAMS, B.M., B.CH. OXON., M.R.C.S. ENG., L.R.C.P. LOND.,

RESIDENT MEDICAL OFFICER TO THE CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, VICTORIA PARK, E.

THE patient, a well-developed girl, aged four and a half years, was admitted into Victoria Park Hospital under the care of Sir Hugh Beevor, Bart., on June 15th, 1905. There was a history of an illness of one month's duration, commencing with what was diagnosed as influenza. This was followed by an attack of diarrhœa and vomiting, accompanied by abdominal pain. A fortnight before admission pneumonia was thought to have set in. During the whole month the child's feet had been slightly swollen, and at one time the left knee-joint (this latter had passed off before admission). She never vomited and for the few days before admission had not seemed feverish but her appetite had been capricious and she had only passed a small quantity of concentrated urine. Except for slight attacks of "bronchitis" her health had previously been good, she never having had any children's complaints. The family history was excellent.

On admission the patient seemed at first to be restless and fretful but when put to bed she lay quietly on her left side, slightly propped up. Considering her month's illness her condition seemed fair. Her colour was, however, pale and slightly bluish and her muscles were a little flabby. The temperature was 97·4° F.; the pulse was 140 per minute, of poor volume and tension, but easily counted; and the respirations were 40 per minute. On examination of the chest the left side was seen to bulge a little and not to move as well as the right on respiration. The heart's apex beat was not visible nor yet palpable. There was an absolutely dull percussion note from above the left clavicle all down the left side, extending two inches to the right of the middle line of the sternum. The heart sounds were heard over the lower part of, and to the right of, the sternum. The percussion note over the whole of the left back and axilla was equally dull. Breath sounds on auscultation were absent over the whole area except at the extreme left apex, where they were bronchial. There was well-marked puerile breathing over the whole of the right chest, with a few crepitations at the base. The hepatic dulness began low—at the seventh rib in the nipple line—and the liver could be felt one inch below the costal margin. The abdomen appeared otherwise to be natural. There was slight œdema of the feet and legs; the urine was scanty but it contained no albumin. A diagnosis of empyema was made and on the same evening an aspirating needle with two feet of rubber tubing attached to it was inserted one inch into the chest in the seventh intercostal space in the left posterior axillary line. In this way 22 ounces of pus were withdrawn which was inoffensive and yellowish in colour. The aspiration was accompanied by no coughing, the child dozing while the fluid ran away. On the next day the patient, though very ill, seemed to be no worse, but, on examining the back of the chest, signs of a localised pneumothorax were found to be present around the place of insertion of the aspirating needle. On the two ensuing days the child's condition became worse; she was taking her food very badly and was becoming more restless at night; the signs of

pneumothorax now extended from the spine of the left scapula nearly to the base where there was still dulness to percussion. On June 20th, as there was no improvement, it was decided to resect a portion of the eighth rib on the left side. This was done in the posterior axillary line, but as soon as a small opening was made in the pleura the child collapsed and died. No pus came from the pleural cavity but a few drachms of turbid fluid and air escaped.

A post-mortem examination was made on the next day; a small quantity of turbid fluid was found in each pleural cavity but the pericardium contained 15 ounces of pus similar to that drawn off by aspiration, in addition to much curdy material. On further opening up the pericardial cavity the hand could be introduced into it and it could be felt to extend as high as the left clavicle, to the ribs in the left axilla, and also three inches to the right of the middle line of the sternum. The wall of the pericardium was about one-sixth of an inch in thickness. The left lung was completely collapsed; near its base could be seen punctures where the aspirating needle had entered and left it. The endocardium was normal. The liver weighed 20 ounces and showed signs of congestion, as did also the kidneys. Cultures were taken of the pus removed by aspiration and of the pus found in the pericardium post mortem; in both cases a pure culture of staphylococcus pyogenes albus was obtained.

Note by Sir HUGH BEEVOR.—Dr. Adams reports here an instance of inefficient diagnosis which has been the usual experience in published cases of this great distension of the pericardium. The mere calling attention to this somewhat rare condition may prevent its being overlooked when consulting as to operation of resection of rib after the discovery of pus by exploratory puncture.

Victoria Park, E.

A CASE OF COMPOUND FRACTURE OF THE PELVIS.

BY EDWARD P. LEAVY, L.R.C.P., L.R.C.S. IREL.,
GOVERNMENT MEDICAL OFFICER, GERALDTON, JOHNSTONE RIVER, QUEENSLAND.

THE patient in the present case was a woman, aged 50 years, and weighing 12 stones, who was brought into the local hospital after a buggy accident. She was in a collapsed state and the front of her dress was soaked with blood which came from a rupture of the upper lip extending as far as the nasal fold and exposing the upper jaw on the left side. There were no other injuries on the face or head. She had no teeth. On removing her clothes her under-garments had much blood upon them which she said had come from "the front passage." She complained of great pain on the left side, with inability to move the corresponding leg. As she lay on her right side after the removal of her clothes the left hip and buttock were observed to be flattened and seemed to have sunk away into the right side. The vaginal hæmorrhage had ceased. Under chloroform the hip-joint was freely moved, the head of the bone was in position, and the leg was uninjured, but on passing the finger into the vagina a large roughened surface of bone could be felt protruding through the left side of that cavity, evidently a fracture of the inferior ramus of the ischium immediately in front of the tuberosity. Reduction was accomplished with the patient on her back by hooking the left leg over the surgeon's arm, and on raising the limb the roughened surface of bone was felt to sink back from its unnatural position. The leg was then bandaged on a McIntyre's back splint screwed up to an acute angle and it was also deemed advisable to place the right leg in a similar splint. The lip was sutured. On a catheter being passed the urine came away clear and was normal in reaction; the bowel was emptied by enemata and a normal motion was passed. The patient could empty the bladder and the bowel naturally in a few days, but on one occasion—namely, on the eighth day after the accident—she commenced to complain of sharp pains whilst passing urine and some blood-stained sediment came away. The bladder was then washed out for a few days and a diuretic mixture was given when all pain and disability ceased. The seat of the fracture was occasionally examined but no displacement of the bone could be felt; the pubic arch was regular; nothing satisfactory could be demonstrated as to the injury to the left sacro-iliac articulation except the patient's subjective symptoms. By the end of the fifth week a trial of the patient's progress was made by assisting her to sit upright and an opportunity was then offered of thoroughly examining the sacral region. Both buttocks were uniform in appearance and no pain was elicited on movement. She was further assisted to stand and when with help she managed to take a few steps round the ward she complained only of feeling giddy and weak.

Fracture of the pelvis is, so far as I know, sufficiently rare to deserve recording, especially on account of the limited range of injury (if any) to the pelvic viscera. I look upon the rupture of the upper lip as the result of *contre-coup*. The patient was wearing a full set of false teeth when she sustained her injuries but they have, strange to say, been lost since the accident.

Geraldton, North Queensland.

NOTES ON ANOTHER CASE OF POISONING BY NITRO-BENZOL.

BY CHARLES H. GREGORY, M.A., M.B. CANTAB.

IN THE LANCET of Jan. 13th, p. 88, Staff Surgeon A. H. H. Vizard recorded a case of poisoning by nitro-benzol. A few notes on another case may be of interest. A short time ago a youth, aged 17 years, swallowed at least one mouthful of this substance out of a bottle which he mistook for one he had half emptied of lemonade and intended to finish. This occurred about noon and his stomach was empty. It was about 20 minutes afterwards that I saw him and during the next half-hour administered copper sulphate to the amount of ten grains, he only then vomiting when I was inserting a syphon tube to wash out his stomach, thinking it inadvisable to wait longer. The patient left my surgery feeling no ill effects but was noticed about an hour or two later to be becoming bluish about the lips. About 5 P.M. I saw him at home; he was in bed complaining of constant vomiting, the ever-present taste of the poison, headache, faintness, and giddiness on attempting to rise. His breath and what little mucus was ejected from the stomach still gave the characteristic odour of "artificial oil of almonds." The pulse was weak and easily compressible and examination of the heart showed the presence of a systolic murmur. The whole body was bluish in colour, the face, especially the lips and tongue, being almost black. Full instructions were given that the boy was not to be left during the night and that in the event of any change I was to be sent for immediately. Meanwhile a dose of calomel was given and a mixture of bismuth and compound tincture of morphine and chloroform to combat the sickness. Brandy was also given, with directions to increase the amount if necessary. The next morning saw the patient a little better, but the headache continued for three days, no coma supervening. The colour of the skin did not become natural for five or six days and by that time the cardiac murmur had entirely disappeared. A tonic containing iron and arsenic rapidly improved the patient's condition and he returned to work in between two and three weeks as well as ever. The urine was dark throughout and looked as if it contained blood-pigment, but beyond the fact that it was shown to give the reaction for picric acid and did not contain albumin circumstances did not permit of an exhaustive examination of it.

Apiti, New Zealand.

INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND.—The pass list of the April examinations has recently been issued. Of seven candidates who entered for the Intermediate Examination the following six passed: C. T. Bennett, B.Sc. Lond., S. H. Groenewoud, B. R. James, G. R. W. Lawson, E. H. Merritt, B.Sc. Lond., and C. A. Wonham, B Sc. Lond. In the Final Examination for the Associateship (A.I.C.) the following three out of four candidates examined in the branch of Mineral Chemistry passed: G. N. Bacon, Assoc.R.C.Sc. Lond., B.Sc. Lond., F. M. G. Johnson, M.Sc. Montreal; and E. J. Wilson, B.A. Cantab. Of four in the branch of Metallurgical Chemistry one passed: H. J. Bailey. Two candidates presented themselves in Organic Chemistry and both passed: L. H. Berry and O. W. Stickland, B Sc. Lond. Of seven who entered in the branch of the Analysis of Foods and Drugs and of Water, including an examination in Therapeutics, Pharmacology, and Microscopy, the following five passed: B. J. Eaton, W. R. Mummery, F. L. Okell, R. P. Page, and R. G. Pelly.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

SUSSEX COUNTY HOSPITAL.

A CASE OF CARCINOMA OF THE STOMACH; PYLORECTOMY.

(Under the care of Dr. E. HOBHOUSE and Mr. R. F. JOWERS.)

THE patient, a married woman, aged 57 years, was admitted in September, 1905, under the care of Dr. E. Hobhouse and transferred to Mr. R. F. Jowers for operation. Her first attack of gastric pain occurred when she was 27 years of age, chiefly after food. For the last five years she had constantly had pain at the epigastrium after food. Two years previously she also had pain in the left hypochondrium and about the same time noticed a small lump to the left of the middle line, which had gradually increased in size. There had been no hæmatemesis but frequent vomiting with relief of pain, no constipation, or melæna. In the abdomen, just to the left of the middle line, was a hard mass which was moveable and of about the size of a Tangerine orange. The liver was not enlarged and there were no enlarged cervical glands. When seen by Mr. Jowers at the end of September she was vomiting after everything she took and was having opiates daily for the relief of pain.

Operation was performed on Oct. 2nd. Mr. Jowers opened the abdomen and found the tumour to be freely moveable and situated at the pyloric end of the stomach. It involved about one-third of the stomach and there were glands in the omenta above and below the growth. The omenta having been ligatured well away from the glands, clamps were applied to the duodenum and the stomach and the included portion was removed with scissors. The opening in the stomach was closed with two rows of continuous sutures. As the cut end of the duodenum could easily be approximated to the stomach without tension it was attached to a vertical incision made in the posterior wall of the stomach about an inch behind the line of section by two rows of continuous sutures. The great omentum was then turned up and attached by one or two points of sutures over the junction and the abdomen was closed. Examination of the specimen showed it to involve both anterior and posterior walls, and Dr. F. G. Bushnell, after microscopical examination, reported it to be scirrhous carcinoma.

The patient made an uninterrupted recovery. When seen recently she was in good health, had gained flesh, and was able to eat ordinary food without pain.

Remarks by Mr. JOWERS.—From the history of the early attacks of pain it seems probable that this is a case of malignant disease following upon gastric ulcer. The importance of early diagnosis cannot be too strongly insisted upon and it was fortunate that after the known existence of a lump for two years excision was still practicable. Quite recently I have operated upon two cases in which, owing to involvement of adjacent parts, removal was impossible and a palliative gastro-enterostomy only was practicable.

EAST SUFFOLK AND IPSWICH HOSPITAL.

A CASE OF APPENDICITIS COMPLICATED BY PERFORATED DUODENAL ULCER.

(Under the care of Dr. JOHN GUTCH.)

FOR the notes of the case we are indebted to Mr. E. G. D. Milsom, house surgeon.

The patient was a man, aged 36 years, who was treated at the East Suffolk and Ipswich Hospital under the care of Dr. Gutch. The following account of his illness previously to admission was given by the patient. He awoke on the morning of March 1st with intense abdominal pain, which by March 2nd had settled in the right iliac fossa; on this date he had also vomited twice and his bowels had been well opened. He had never before suffered from attacks of a similar nature, the only point of interest in his previous history being that he was a heavy drinker and had suffered from indigestion with occasional attacks of hæmatemesis.

When seen in the ward on March 3rd the patient was lying comfortably on his back and not looking very ill. His tongue was furred, his temperature was 101° F., and his pulse was 100. The abdomen moved badly on respiration but showed no obvious fulness. Rigidity was present on the right side but was most marked over the right iliac fossa, where there were also impaired resonance and tenderness on pressure. Rectal examination yielded no information. A blood count showed a leucocytosis of 20,000. Great difficulty was experienced in examining the patient as he was extremely fat. A diagnosis of acute appendicitis was made and, in view of an increasing pulse-rate and the presence of a leucocytosis, immediate operation was decided on.

An incision was made through McBurney's point and on opening the abdominal cavity, after some difficulty, the cæcum was found bound to the neighbouring coils by adhesions. In breaking these down a small quantity of dark offensive pus was evacuated from a cavity behind the appendix through the apex of which a fæcal concretion had perforated. Removal of the appendix was impracticable as small portions broke away on the slightest manipulation; a large drainage tube was therefore inserted and the lower half of the abdominal wound was closed.

For 24 hours the patient seemed to be doing well; he passed a good night and felt comfortable; his temperature was 99·2°. His pulse was good and the abdominal wound was draining well. He had been fed on nutrient enemata only. At 1 A.M. on the night of March 4th he vomited a few ounces of dark tarry blood; he did not complain of pain and had a good tension pulse with a temperature of 99°; his abdomen moved well. Morphine was administered hypodermically and adrenalin and ice by the mouth; but the hæmatemesis continued incessantly and the patient by 4 A.M. was suffering from all the symptoms of severe hæmorrhage. In spite of all remedies he continued to vomit and died on March 5th, 13 hours after the onset of hæmatemesis and 41 hours after operation. Taking into consideration the previous history of alcoholism and hæmatemesis, the most probable diagnosis seemed to be rupture of an œsophageal pile complicating cirrhosis of the liver.

Necropsy.—The post-mortem examination was performed four hours after death. The appendix region was completely shut off from the general peritoneal cavity. It was impossible to ascertain the amount or nature of the fluid in the abdominal cavity, as fæces escaped from the intestines which were wounded when opening the abdomen, but the peritoneum presented no evidences of inflammation. In the first part of the duodenum close to the pylorus there was a perforation half an inch in diameter. There were only a few adhesions in the neighbourhood. The ulcer was single with no induration round it and had a "punched-out" appearance. No open vessel was found to account for the hæmatemesis. The liver showed well-marked fatty cirrhosis and the other organs were normal.

Remarks by Dr. GUTCH.—The association of hæmatemesis with appendicitis, though one of the rarer complications, is not unknown. Kelly in describing the symptoms of acute appendicitis says, "Hæmatemesis has been described by Treves, by Dieulafoy, and by Matheson and others, and is attributed generally to toxic degeneration of the gastric mucous membrane with erosion of small blood-vessels," and the hæmatemesis in the above case might presumably have been of that nature, though with the previous history cirrhosis seemed a much more probable diagnosis. I can find no mention of the degeneration and erosion going on to ulceration, and the association of the perforating duodenal ulcer was in this case, I have no doubt, an unfortunate coincidence and in no way a sequel of the appendicitis. The previous hæmatemesis was also probably due to duodenal ulceration.

DEATHS OF CENTENARIANS.—The *Times* of April 25th states that Captain Edward Dumaresq, late of the Honourable East India Company's service, died on April 16th, aged 104 years, at the residence of his son, Mount Ireh, Longford, Tasmania.—The death occurred at Pontrhydyfen, Glamorgan, on April 24th, of Mrs. Mary Thomas, aged 105 years. Up to a few weeks ago she was quite active and possessed a clear memory. Her grandmother lived beyond 100 years.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

The Use of Rectal Injections of an Antistreptococcic Serum in Gonorrhœal Infections and in Certain Cases of Purpura Hæmorrhagica.

A MEETING of this society was held on April 24th, Mr. J. WARRINGTON HAWARD, the President, being in the chair.

A communication by Dr. W. SOLTAU FENWICK and Dr. J. PORTER PARKINSON upon the Use of Rectal Injections of an Antistreptococcic Serum in Gonorrhœal Infections and in Certain Cases of Purpura Hæmorrhagica was read. They stated that during the course of a series of experiments upon the influence of various forms of serum and of mixtures of different sera on diseases commonly met with in hospital practice they had obtained certain results which appeared of considerable interest. This statement applied particularly to that large class of complaints in which the symptoms arose from a gonorrhœal infection, either recent or remote, and it was to such that they would at the present time invite attention. Inasmuch, however, as they had also encountered two examples of hæmorrhagica purpura which rapidly benefited by the same method of treatment it might be excusable to include them in this communication. Cases had been selected from a series of 14 consecutive instances in which the presence of gonorrhœa was definitely ascertained and confirmed by bacteriological examination and in which the symptoms and signs rapidly subsided under the use of the serum after having resisted the various methods of treatment usually recommended for the disease. The details of two cases of gonorrhœal pyæmia were then given, followed by two cases of severe gonorrhœal arthritis. The latter two cases were selected because they were not only exceptionally severe but also represented a second attack of the complaint. In both instances the disease progressed during the patient's residence in the hospital and the pain and swelling of the joints first affected were in no way relieved by three weeks' assiduous attention to the original complaint and the adoption of the ordinary methods of treatment of gonorrhœal rheumatism. In both instances, also, the effects of the injection of the serum were immediate, the pain being relieved after the second dose and the tenderness and swelling rapidly subsiding after the third. The rectal injections being administered by a nurse the patients were quite unaware that anything unusual in the way of treatment was in progress. The fact that in the various cases they had treated in this manner the urethral discharge disappeared along with the other phenomena of the complaint naturally suggested that acute gonorrhœa might also respond to the serum. Unfortunately, however, considerable difficulty was experienced in inducing suitable cases to become in-patients at the hospital or to attend each day at the casualty department so as to permit the effects of the treatment to be watched carefully but the results obtained in the few cases treated suggested that the serum would prove as valuable in the urethral complaint as in its sequelæ. Details of two cases of purpura hæmorrhagica were then given. In the first the condition was associated with chronic pulmonary tuberculosis and was one of the most severe and rapid that Dr. Fenwick and Dr. Parkinson had ever encountered. In the second all the organs of the body were apparently healthy but since the child came under treatment as early as the second day of the complaint it was impossible to say what course the disease would have taken. The fact, however, that after the lapse of 34 hours severe hæmaturia and bleeding from the mouth had set in, seems to indicate that the case would have proved a serious one. In both these cases after rectal injection of serum rapid recovery took place. As soon as they were assured that the antistreptococcic serum exerted an important influence upon gonorrhœal infections a series of control experiments were instituted by means of simple enemata and rectal injections of the anti-diphtheritic and other sera. Normal horse serum in doses of 20 cubic centimetres was likewise employed. In no instance did the patients experience any relief of their symptoms as the result of these experiments, nor did the physical signs of the disease in any way improve until the antistreptococcic serum was substituted for the other forms of injection. The antigonococcic serum specially prepared at the Wellcome Research Laboratories for the treatment of gonorrhœa also proved of no value in their hands. In addition to the ordinary joint lesions of gonorrhœal origin they had met with several cases in which the inflammatory trouble was chiefly situated in the muscles of the lumbar region and spine. In two well-marked instances of this description, where the patients had been confined to bed for three and five weeks respectively and were unable either to raise themselves or to turn over owing to the severity of the pain which such movements induced, three doses of the anti-streptococcic serum completely removed the complaint, so that on the fourth day they were able to get up and to walk about without experiencing anything worse than slight stiffness of the muscles of the back. They said that during the last two years they had never encountered a genuine example of gonorrhœal rheumatism, either in hospital or private practice, that was not immediately benefited by an injection of the serum or any case which had suffered from a relapse. It might also have been remarked that the term "an" antistreptococcic serum had been employed instead of a more general appellation. The reason for this was that there were at least seven varieties of antistreptococcic serum on the market but it had only been with one of these—namely, that prepared at the Wellcome Research Laboratories—that the results mentioned were obtained. By this they did not mean to infer that the other forms were useless but that this particular preparation had been the one with which the best results had been obtained. They were informed by Dr. W. Dowson, the director of the Wellcome laboratories at Herne Hill, that this special preparation was termed by them the "polyvalent" antistreptococcic serum in order to distinguish it from several other varieties prepared at the same laboratories and that in its manufacture 43 different strains of streptococcus were employed, taken from such diverse clinical conditions as septicæmia, ulcerative endo-carditis, puerperal fever, malignant sore-throat, and acute rheumatism. With regard to the dosage of the serum they found that double the ordinary amount—namely, 20 cubic centimetres—followed by three or four injections of ten cubic centimetres each on consecutive days was usually sufficient in the majority of cases, it being only in gonorrhœal pyæmia and in severe examples of purpura hæmorrhagica that two injections a day were necessary.

MR. STEPHEN PAGET said that he had been one of the first to receive an injection of antistreptococcic serum for an infection from a case of septic peritonitis and the effect in arresting the spread of infection had been most striking. In the cases described the treatment seemed equally effective in chronic as in acute cases and of equal avail in cases which were or were not of bacterial origin, such as purpura hæmorrhagica. He asked whether Dr. Fenwick and Dr. Parkinson had used it in cases of hæmophilia and suggested it might be of service in those cases.

MR. CAMPBELL WILLIAMS said that the term "gonorrhœal rheumatism" was most misleading. There were three distinct varieties of the disease: first, a cellulitic form which had all the appearance of an acute suppuration but which on incision yielded only a little clear serum; secondly, an arthritic form; and thirdly, an arthralgic form without any swelling but with considerable pain; this pain he attributed to neuritis and periostitis. The so-called gonorrhœal infection was in reality a mixed infection and due to a staphylococcal and streptococcal infection and it was probably for this reason that the disease yielded to the treatment by antistreptococcic serum.

MR. J. P. L. MUMMERY said that the fact that the serum acted equally well when injected into the rectum as when injected under the skin was an observation of great importance. He said that the injections were of great value in cases in which septic infections were likely to arise, such as excision of the rectum and in operation on the mouth. He asked about the subsequent history of the patient who was cured of gonorrhœal urethritis, for the greater difficulty arose in curing the gleet rather than the acute stage of the disease.

DR. PARKINSON, in reply to the PRESIDENT, said that no special preparation was necessary before giving the injection by the rectum. He had not tried the serum in cases of hæmophilia. He regarded purpuric hæmorrhages as due to a bacterial infection or its toxin. The injection of the serum rapidly relieved the pain in the joints and the swelling subsided. He suggested that the serum might be used with good results in gonorrhœal ophthalmia.

PATHOLOGICAL SOCIETY OF LONDON.

Conveyance of Plague by Feeding.—Bacillus Equi.—Carcinosarcoma of Larynx.—Classification of Pathogenic Streptococci.

A LABORATORY meeting of this society was held at St. Bartholomew's Hospital on May 1st, Dr. F. W. ANDREWES being in the chair.

Dr. E. KLEIN showed lantern slides illustrating the successful Inoculation of Rats, Guinea-pigs, and Mice with Plague by means of Feeding Experiments. The material used was dried gelatin and agar cultures of the organism.

Dr. KLEIN also showed a lantern slide illustrating Bacillus Equi in the blood of a rabbit dead after intravenous inoculation by this organism.

Mr. FRANK A. ROSE showed a microscopic section of a Tumour removed from the Larynx. The tumour had been removed by the operation of thyrotomy from the interior of the larynx. Microscopic examination revealed an unusual appearance. Two-thirds of the tumour had the appearance of a spindle-celled sarcoma, whilst the remaining portion had the appearance of a squamous-celled carcinoma. An enlarged lymph gland showed no evidence of malignant disease.

Dr. ANDREWES and Dr. T. J. HORDER gave a preliminary account of their work on the Classification of the Streptococci Pathogenic for Man. Dr. Andrewes, after mentioning the conflicting views which have been held on this subject, referred to the chemical tests introduced by Dr. M. H. Gordon, which he shortly described. In the hands of Gordon, Houston, and others very marked chemical distinctions had been shown to exist amongst the saprophytic streptococci of the mouth and intestine, in air and in milk. He and Dr. Horder had tested some 200 streptococci and pneumococci from cases of human disease, applying Gordon's tests to each. They had found these tests, on the whole, to give very constant results—i.e., a given strain gave always identical reactions, with occasional exceptions. Some reactions were less constant than others, indicating that all the tests were not of equal value. But no one chemical reaction was of absolute specific value. Gordon's tests required to be used in conjunction with other characters and so used they were of the greatest assistance in the identification of the streptococci. The streptococci were a dominant genus which had specially adapted itself to a saprophytic existence in the animal body and were probably rapidly varying in their physiological acquirements. Some few forms only had acquired parasitic powers. The species were not yet fixed so clearly as in some other genera. Tabulating the results of some 1300 or 1400 colonies in which Gordon's tests had been applied the result was a bewildering number of chemical types in which no sort of order was apparent till other characters were taken into consideration. But amongst the pathogenic forms some five groups of approximately specific value were recognisable. These were as follows: 1. Streptococcus pyogenes, vel erysipelatos, the most typically parasitic and virulent. This was a long-chained form which never clotted milk or reduced neutral red. It gave a positive acid reaction with saccharose and lactose and usually with salicin, more rarely with coniferin and mannite. This was the species responsible for acute suppurations, erysipelatous processes, and many septicæmias. 2. A type which was chemically closely related to the streptococcus brevis of the mouth and intestine but which in disease commonly showed long chains. It was distinguished from streptococcus pyogenes by its power of clotting milk and usually of reducing neutral red, by its lesser virulence, and by the fact that it grew with difficulty on gelatin at 20°C. It was a not uncommon cause of malignant endocarditis and had possible relations with scarlet fever and rheumatism, though no sufficient data were forthcoming for definitely associating it with these. 3. Streptococcus fæcalis: a short-chained form typical of the intestinal canal, not pathogenic for mice, but chemically very active. It habitually gave positive reactions with all of Gordon's tests except raffinose and inulin and sometimes even with these; on the other hand, some reactions might be suppressed. It was common as a cause of cystitis and of terminal septicæmias, perforative peritonitis, and occasionally of meningitis. 4. The ordinary pneumococcus, which habitually gave positive reactions with saccharose, lactose, and raffinose, and often clotted milk; inulin, too, was sometimes fermented. 5. An aberrant pneumococcus, growing well on gelatin at 20° C. and fermenting mannite and saccharose. These types represented the irreducible minimum of groups, of approximately specific value, to which the pathogenic streptococci and pneumococci could be referred. Many intermediate forms occurred and might ultimately prove worthy of recognition as species. The question had a very serious bearing on serum therapeutics, because it was possible in a few days to refer any given streptococcus to one or another of these types and it would be easy to prepare anti-sera against each type. Dr. Horder specified the condition usually called malignant endocarditis as illustrating the importance of these investigations. During the past two years the streptococci isolated from the blood during life and from the heart valves after death in cases of malignant endocarditis had been subjected to full investigation, including the series of metabolic tests already mentioned. The result has been to show clearly that the commonest type of streptococcus present is not streptococcus pyogenes but one or another of the types which occur as common saprophytic organisms in the intestine or mouth. The cases thus examined numbered 16, 13 of which were examined by blood culture upon one or more occasions during life, the organism being isolated by this means. Of the 16 streptococci two only were certainly of the type streptococcus pyogenes. No fewer than eight were of the type, at present unnamed, so common in the saliva. Four were of the type streptococcus fæcalis. In two cases the reactions were not satisfactorily completed. The organisms isolated during life were mostly verified by these same reactions post mortem. One of the two cases in which streptococcus pyogenes was present was a very acute case, fatal in three days from the onset. The other case was much more acute than either of those from which the other two types of streptococcus were isolated. It therefore seemed certain that in the rather common subacute or chronic cases of streptococcal endocarditis the organism was rarely streptococcus pyogenes. The significance of this observation was very considerable, as well from clinical and therapeutic as from a pathological point of view. Pathologically it explained the source of the organisms most often picked up from the blood stream by a damaged heart valve. These organisms were the common saprophytes of the intestine or mouth which gained a nidus in the valve and thence maintained a state of septicæmia. Clinically, it explained the very chronic nature of many of the cases in which for a considerable interval the disease might exist without much constitutional disturbance. Therapeutically, it perhaps explained the present disappointing results of serum treatment in malignant endocarditis. For it was unlikely that even the most polyvalent serum was immunised to any extent, if at all, against the saprophytic organisms. It must be remembered that a polyvalent serum was polyvalent in the sense of being immunised against streptococci from different sources, not against streptococci having known differences in their characters.

CLINICAL SOCIETY OF LONDON.

Exhibition of Cases.

A MEETING of this society was held on April 27th, Mr. H. H. CLUTTON, the President, being in the chair.

Dr. G. A. SUTHERLAND exhibited a case of (?) von Recklinghausen's Disease in a male child, aged five years. At the age of six months a swelling of the size of a bean was noticed on the right temple and the right cheek and eye appeared to be growing out of proportion to those of the left side. All these swellings had greatly increased. The child had suffered from rickets and many bony deformities were present as the result. There was a swelling over the right frontal bone and considerable bony enlargement of the left side of the skull. The right eye was enlarged. The right cheek was enlarged and contained nodular thickenings in its substance. Pigmentation in varying shades of brown was present over the frontal swelling, the right upper eyelid, the trunk, the axillæ, and the groins. There was no enlargement of the spleen.—The PRESIDENT remarked that the case resembled leontiasis ossea in some respects but he had not observed that disease in so young a subject.—Mr. W. G. SPENCER had noted that the spleen was not enlarged and that the hypertrophy of the

tissues was localised to the region of the fifth nerve, just as in morphœa there was a localised atrophy in the same region, and he therefore believed that the case could be explained in the same manner—namely, by a trophic lesion of the fifth nerve.—Mr. GEORGE PERNET and Dr. F. PARKES WEBER, however, considered the case to be one of von Recklinghausen's disease, although it differed from the classical descriptions of that malady. The former suggested that the bony changes in the skull might indicate the supervention of sarcoma.

Dr. WEBER exhibited a case of "Spontaneous" Fracture in the Tarsus in a woman with Argyll-Robertson pupils. The patient was aged 45 years. About 12 months ago the right foot had become swollen and painful and some crepitus could be felt. A Roentgen ray photograph showed that a portion of the head of the astragalus was broken off and displaced. There were Argyll-Robertson pupils on both sides, the right pupil being the larger. The knee-jerks were present. No definite history of syphilis was forthcoming but the patient had had five miscarriages. Mercurial inunction had been employed, followed by the internal use of iodide of potassium, with considerable improvement.—The PRESIDENT remarked that the case bore all the evidence of tabetic arthropathy. He had seen such cases in which later other evidences of tabes gradually appeared. He regarded the displacement of the head of the astragalus (shown by the x rays) as being peculiar to what might be called Charcot's disease of the tarsus. Gumma of the tarsus in that situation was practically unknown.—Dr. WEBER replied that the Argyll-Robertson pupil occurred in many syphilitic persons without leading necessarily to tabes, of which disease his patient exhibited no other symptoms. A possible explanation of the bony deformity was that it was a gumma, though the appearances in the radiogram resembled a fracture or displacement of the head of the astragalus.

Mr. PERNET showed a case of Ringworm of the Scalp treated by one sitting of the X Rays. The boy, aged seven years, was first seen in October, 1905, with a patch of ringworm occupying the greater part of the occiput. On Oct. 19th, 1905, he had one exposure of the x rays, according to the Sabouraud-Noiré method (with the platino-cyanide of barium pastille). This was followed by the falling out of the stumps and hairs on the parts exposed. The result was excellent, the hair having grown well. No disease was now present.

Mr. PERNET also showed a case of Lymphangiectodes (lymphangioma circumscriptum) occurring in a woman, aged 26 years. The disease had commenced at the age of five months. There were nine or ten groups of deep-seated vesicles occupying the right side of the chest from the neighbourhood of the axilla. Some hæmorrhage had occurred into the lesions. The majority of the cases hitherto described were of English nationality.—Mr. CAMPBELL WILLIAMS thought that these cases of lymphatic nævus were by no means rare, as many such cases occurred in children attending hospitals and were removed by surgeons.

Mr. W. H. BATTLE exhibited a woman, aged 30 years, after operation for Perforation of a Second Simple Ulcer of the Jejunum into the General Peritoneal Cavity. She was admitted to St. Thomas's Hospital in March, 1903, for perforated gastric ulcer. This ulcer was situated in the anterior aspect of the stomach near the pylorus and was surrounded by a good deal of thickening. It was sutured, the peritoneum was cleansed, and a drainage-tube was left in the lower wound. Anterior gastro-enterostomy was performed on April 9th, 1904, for pyloric stenosis. On May 6th, 1905, she underwent operation for perforation of a simple ulcer of the jejunum which had burst into the general peritoneal cavity. It was a circular clean-cut ulcer, situated about one and a half inches from the line of junction of the bowel with the stomach. The ulcer was sutured, the peritoneum was cleansed, and the two wounds through which this was done were closed without drainage. Finally the patient was again admitted to the hospital on March 14th, 1905, for symptoms of "perforation." At the operation a perforated ulcer was found at the line of junction of the stomach and small intestine. The tissues around it were indurated. She left the hospital on April 12th, having made a very satisfactory recovery. It was of interest to note that there were no adhesions found at this operation; also that there was now no hernial protrusion of any of the scars.—Mr. SPENCER discussed the possibility of anterior gastro-jejunostomy producing a tendency to re-perforation, but it occurred also after posterior gastro-jejunostomy and in his opinion was not dependent on the kind of operation performed.

Mr. BATTLE also exhibited: (1) A case of Post-auricular Fistula in a girl, aged 11 years; (2) a case of Deformity of the Ulna with Dislocation of the Head of the Radius associated with Multiple Osteomata in a girl, aged 15 years; (3) a case of Ulceration of the Alveolar Border of the Upper Jaw on both sides exposing the Antrum in a man, aged 38 years, of 18 months' duration, probably due to tuberculosis or actinomycosis.—Mr. SPENCER referred to a similar case due to glanders.

Dr. A. E. GARROD exhibited a case of Muscular Atrophy in a girl, aged 11 years. The atrophy involved the shoulder-girdle on both sides, affecting only the lower portion of both pectoral muscles, and being most marked in the dorsal interossei of both hands. The muscles did not react to either the faradic or galvanic currents. The atrophy was more marked on the left side and the left leg was weak, the latter dating from a paralytic attack at the age of one year.—Dr. E. FARQUHAR BUZZARD agreed in the diagnosis of hereditary myopathy grafted on to a case of infantile hemiplegia.

Dr. GARROD also exhibited a case of Angio-neurotic Œdema in a girl, aged 20 years. Since the age of 14 years she had had recurrent acute attacks of circumscribed œdema of the right cheek. Polyuria had been noticed to accompany the attacks. In the last attack three months previously the œdema had extended to the nose, both eyelids, and the forehead, and since then the œdema had persisted up to the present time.—Dr. WEBER thought that there was some doubt of the diagnosis on account of the constant recurrence of the œdema in the same place and its final persistence; and Mr. SPENCER suggested that it might be produced by some antral or naso-pharyngeal streptococcal affection.

Dr. LEONARD G. GUTHRIE exhibited a case of Extreme Obesity with Precocious Puberty in a girl, aged three years. The child had always been rather plump but had rapidly been growing fatter during the past six months, since which time the breasts had begun to develop and hair had appeared on the pubes. The child's intelligence was normal.—Dr. SUTHERLAND remarked that in most of such cases of abnormal obesity the intelligence was dull but here it was associated with both normal intelligence and precocious sexual development.—Dr. GUTHRIE, in reply, commented on the interesting association of the obesity and abnormal sexual development and drew attention to a series of 12 similar cases published by Dr. W. Bulloch and Dr. J. H. Sequeira in the Transactions of the Pathological Society. Ten of these were females, who exhibited precocious sexual development, and six of them exhibited obesity; the two male cases showed great muscular development. In six of these cases hypernephroma of the adrenals had been revealed and Dr. Guthrie suggested that the same condition might exist in his case.

Dr. GUTHRIE also exhibited a case of Paralysis of the Left Sixth and Paresis of the Left Seventh Nerves in a girl, aged three years, which had supervened about six weeks ago. There was weakness on the left side of the face and paralysis of the left external rectus. Beneath the left zygoma was a prominent swelling. The head was almost constantly drawn downwards towards the right shoulder. A tuberculous nodule could be seen on the back of the right hand. The gait was slow, shuffling, and unsteady.—Dr. BUZZARD suggested a tuberculous lesion at the base of the brain in the ponto-cerebellar region, spreading to the left cerebellar hemisphere and thus causing the ataxy; but Dr. GUTHRIE inclined to the diagnosis of tuberculous disease of bone in the malar region extending inwards and involving the left facial nerve externally and the left sixth nerve internally. The deviation of the head was probably adopted to avoid diplopia.

LIVERPOOL MEDICAL INSTITUTION.

Ankylostomiasis.—Cases of Gall-stones with Unusual Features.—After-treatment of Radical Cure of Hernia in Infants and Young Children.—The Etiology and Treatment of Oblique Inguinal Hernia.

A MEETING of this society was held on April 26th, Mr. FRANK T. PAUL, the President, being in the chair.

Dr. J. LLOYD ROBERTS read a note on Ankylostomiasis,

based upon the case of an English sailor who was recently under his care at the Royal Southern Hospital. He described the parasite which was the cause of the disease, the mode of infection, the symptoms, the blood changes, and the treatment. He also showed specimens of the adult worms and lantern slides of the worms and of fæces containing ova.

Mr. RUSHTON PARKER related two very different cases of Gall-stones. 1. The patient, a woman, aged 45 years, suffered from pain, vomiting, and dyspeptic symptoms suggestive of gastric ulcer. An exploration made in the middle line of the epigastrium revealed adhesions between the pylorus and the liver; when these were freed a stone was felt in the gall-bladder. The stone, which was of the size of a small marble, was removed and the gall-bladder was sewn up at once. The patient went home in a few weeks apparently cured. She returned in three and a half years (1906) saying that the immunity from symptoms had only lasted for two months. On March 8th, 1906, Mr. Parker opened the original scar again and extended the wound downwards to give easy access to the biliary passages. A stone in the gall-bladder was removed, the cystic duct was tied and cut, and the gall-bladder removed. Another stone was found impacted in its neck. The patient made a complete recovery in five weeks. 2. A stout and apparently vigorous woman, aged 71 years, was admitted on Dec. 30th, 1905, with symptoms of intestinal obstruction of three days' duration. Three similar attacks in two years had yielded to copious enemata which brought away large fæcal accumulations. Jaundice was set up in each attack after 24 hours. A small slack umbilical hernia was apparently not involved in the symptoms. The abdomen was opened through the hernia by a transverse incision. General peritonitis, with adhesive yellow lymph and inflammatory thickening of several feet of the small intestine, was found. A hard object felt in the gut one foot above the ileo-cæcal valve was found on removal through an incision to be a gall-stone one and a half inches long and three-quarters of an inch thick. The intestinal incision was sewn up and the abdomen was closed. The patient died three hours later. At the necropsy the liver was found to be enlarged and fatty; the gall-bladder was exceedingly small but was filled with a second calculus less than half the size of the one that had escaped. A perforation in the gall-bladder led to a space under the liver and thence into the duodenum. This suppurating space was shut off from the peritoneum and did not account for the peritonitis. The latter more probably resulted from transudation of septic intestinal contents during the impaction of the larger calculus in various parts of the small intestine. The state of the patient's viscera, her age, and the duration of the disease together completed the hazard of the situation.

Mr. R. C. DUN read a note on the After-treatment of Cases of Radical Cure of Hernia in Infants and Young Children. The growing tendency to adopt early operative measures was commented on, and a comparison was drawn between the results of operative treatment and those obtained by the use of trusses. The chief points in favour of early operation were the certainty of cure and the short duration of treatment. Many children apparently cured by trusses subsequently developed herniæ in later life, and these recurrent ruptures were liable to be looked upon as acquired. The strongest evidence existed that the majority of cases of inguinal hernia occurring in adult life were of congenital origin. The simplicity and safety of operations for the cure of hernia in infants and young children were explained. Stress was laid upon the importance of obtaining primary union of the wound. The supposed difficulty of preventing contamination by the evacuations in children too young to have obtained control had up to the present stood in the way of a more universal recourse to early operation. The open method of after-treatment devised and published by Stiles of Edinburgh had, after 15 months' trial, given thoroughly satisfactory results in Mr. Dun's hands. This method was described in detail. Its simplicity and the certainty with which it prevented soiling of the wound rendered it the best form of after-treatment.

Mr. R. W. MURRAY read a paper on the Etiology and Treatment of Oblique Inguinal Hernia. He said that although the presence of an inguinal hernia must be due to some weakness of the structures through which the abdominal contents escaped, the question yet to be answered was, What are the chief factors which cause this weakness and so determine the descent of the bowel? He did not agree with the generally accepted division of inguinal hernia into congenital and acquired, and after pointing out the marked difference between a typically congenital and a typically acquired hernia said that the sac of an ordinary inguinal hernia at all periods of life closely resembled the former and bore little or no resemblance to the latter. He maintained that the main factors in the causation of oblique inguinal hernia at all ages were, first, the presence of a congenital or pre-formed sac and, secondly, want of strength in the muscles guarding the internal abdominal ring. Evidence derived from the study of comparative surgery, post-mortem observations, and clinical experience was adduced in favour of this belief. As to treatment, Mr. Murray said that the cure obtained by means of a truss must always be uncertain, for he did not believe that the funicular process ever became completely obliterated by this method. He strongly advocated operation during infancy when a permanent cure could be assured. In operating he usually adopted the same method irrespective of the age of the patient. The essential points of the operation were that the inguinal canal was opened up and the sac excised after applying a ligature to it at the level of the internal abdominal ring. The divided aponeurosis of the external oblique was united by overlapping. In exceptionally large herniæ in adults he had obtained satisfactory results by inserting a rubber pad which rested on the transversalis fascia beneath the internal oblique and Poupart's ligament. A hole in the pad transmitted the spermatic vessels and the cord.—The PRESIDENT thought the statement that all inguinal herniæ were due to the presence of a congenital sac was too sweeping.—Mr. PARKER thought that the terms congenital, infantile, and acquired should be abolished. He had advocated the early operation in infants more than 11 years ago. The sac should be obliterated but there was no need to remove it and there was no need to close the inguinal canal in children. He considered that the length of the mesentary was an important factor in the etiology of hernia.—Mr. K. W. MONSARRAT said that Mr. Murray had added considerably to the already strong evidence in favour of the view that in the great majority of cases at any rate hernial protrusions took place into pre-formed sacs of congenital origin. He thought that all the evidence pointed to the importance of dealing in the most thorough manner with the sac in all operations and to do this he considered that it was necessary to slit the external oblique from the external ring upwards to a greater or less extent in all cases. Bassini's operation had given excellent results in the hands of many surgeons. He thought that its chief merit was the perfect access it gave to the neck of the sac. There was no doubt that in a considerable proportion of cases there was defective origin of the internal oblique from Poupart's ligament, a defect which had to be remedied by suture. Mr. Monsarrat left the cord undisturbed and sutured the internal oblique to Poupart's ligament in front of it and not behind it, considering that it was a mistake to bring the cord through the muscular layer immediately superficial to the internal ring. The recurrences that took place after Bassini's operation did so at this point—a fact which supported the view that the weak point in the several layers of the wound should not be superimposed.—Mr. G. P. NEWBOLT considered that though the majority of cases of oblique inguinal hernia had a congenital origin, yet there were undoubtedly cases in which the condition was acquired. The radical operation in infancy was practically always successful but the mortality was a factor to be considered and was higher than that in adults.—Mr. D. DOUGLAS CRAWFORD agreed with Mr. Murray that all oblique inguinal herniæ were probably due to persistence of a funicular process, this view being supported by four cases of hernia occurring in boys about 17 years old, the first appearance being associated with strangulation and at operation each was found to possess a patent processus vaginalis with an extremely narrow neck about one inch in length which had produced the strangulation. He used a simple collodion protection in children, instead of a heavy dressing and spica bandage, which being difficult to keep dry increased the risk of suppuration.—Mr. G. G. HAMILTON, Mr. DAMER HARRISSON, and Mr. T. C. LITLER JONES also took part in the discussion on Mr. Dun's note and Mr. Murray's paper.

EPIDEMIOLOGICAL SOCIETY.—A meeting of this society was held on April 20th, Dr. J. F. W. Tatham, the President, being in the chair.—Dr. Reginald A. Farrar read a paper on the Infectivity of Cerebro-spinal Fever, supplemented by lantern demonstrations of its bacteriology by Dr. M. H. Gordon. Referring to papers read

by Dr. Bruce Low and others on the disease and to the classic work of Hirsch on its epidemic history he would, he said, confine himself to the one question of its infectivity. He admitted that the medical officer of the Local Government Board in 1888, Professor Osler, Dr. Latimer in America, and the late Dr. J. S. Bristowe, Dr. Hilton Fagge, and Sir Burdon Sanderson held that it was not directly communicable or only so in a slight degree, Sir Burdon Sanderson's conclusions being based on his observation of a great epidemic on the lower Vistula in 1865. Yet, since there was no suggestion of its being water-borne or conveyed by insects, the behaviour of the disease in epidemics could not be explained save by direct personal infection or conveyance by fomites. If so, the consideration of the best means for its repression was an urgent duty, for so far as official returns could be relied on it was greatly on the increase in this country and in America, while it had long been prevalent in Russian and Prussian Poland, and outbreaks were constantly being reported everywhere from Norway to New South Wales and from Ceylon to Nigeria. Dr. Farrar then proceeded to adduce evidence of the infectivity of cerebro-spinal fever in the occurrence of multiple cases in single houses, the implication of "contacts," especially of attendants on the sick, and its conveyance by persons, either themselves or by means of their clothing, to others, often in distant and widely scattered villages, as reported by Dr. Gifford of Boston, U.S., in 1873; Bolton Corney in Fiji in 1888, Friis of Copenhagen in 1891, and still more recently by E. Sweet about Crowborough, Hope Reford in co. Down, Ch. Boldman and Mary Goodwin of Boston, U.S., Walker around Spilsby and Arthur in the Easington rural district; the last two he treated in detail. Hirsch, in a paper read before the society, came to an opposite conclusion from Sir Burdon Sanderson in regard to the epidemic of 1865. Though cases were on record of outbreaks in which either the garrison or the civil population of the town was alone attacked, there appeared to be a special tendency to the occurrence of epidemics in barracks and to the spread of the disease by the movement of troops from infected to healthy places and *vice versâ*. Bouet in 1841 to 1849 collected a large number of such instances occurring at Orleans, Strasburg, Marseilles, Avignon, Nimes, and other places, Petersen at Berlin in 1896, and Jaeger at Ulm in 1893-99. Although intracellular micrococci were not easily kept alive *in vitro* there was reason to believe that in a mucous or albuminoid covering they might, even when dried, retain their vitality for long periods. Jaeger obtained cultures from the dust of the floors of the barracks at Ulm after 96 and 127 days and gave instances of infection otherwise inexplicable, and Germano and Max Neisser classed Weichselbaum's diplococcus among organisms most resistant to drying. When the severest cases alone were taken into account the fatality was over 50 per cent., but a very large number of milder cases erroneously diagnosed or even unnoticed would, if duly included, reduce the percentage considerably. The extreme virulence of the infective material in some cases might be due to the symbiosis of other cocci, as the micrococcus catarrhalis or Fraenkel's diplococcus of pneumonia. The rapidity with which this virulence was lost by successive cases in the course of an epidemic and during convalescence was remarkable.—Dr. Mervyn H. Gordon said that the micrococcus of Weichselbaum, which was undoubtedly the specific organism of cerebro-spinal fever, had a distinct individuality and should always be looked for in suspicious cases. The spinal fluid yielded pure cultures and lumbar puncture was practically free from danger; it was generally present in the nasal mucus, mostly mixed with micrococcus catarrhalis, and might be found in the blood. Elser of New York found it in 7 per cent. Its characters were well marked; it was essentially intracellular, negative to Gram's stain; its colonies in broth were large and smooth and translucent, would not grow on gelatin at 22° C., but flourished on nutrose acetic agar. It decomposed glucose, galactose, and maltose with an acid reaction, but not saccharose. Besides other points of difference many of the nasal micrococci were Gram positive, but micrococcus catarrhalis with a few others were negative and might be confused, though micrococcus catarrhalis was, as a rule, larger, its colonies were more opaque, grew well on gelatin at 22° C., and with sugars gave a strongly alkaline reaction. It, too, might be intracellular and distinctly tetrad, so that the reaction with saccharine media alone sufficed for determination. Both were liable, especially on broth, to become streptococcal or staphylococcal, as, indeed, were all micrococci, and the colonies in agar were surrounded by a halo which was broader than in the meningococcus. The pneumococcus was positive to Gram, its colonies resembled but were smaller than those of the meningococcus, and in albuminous fluids it appeared as diplococci in capsules. The cocci were often so elongated as to resemble bacilli. Experiments with disinfectants variously diluted on equal quantities of cultures of the meningococcus and the effects noted at the end of 30 seconds' and three minutes' contact respectively showed that medical izal was twice as efficient as mercuric chloride or potassium permanganate in practical solutions. Gargling for five minutes with 100 cubic centimetres of izal, liquor chlori, or permanganate of potassium in various dilutions was followed by a reduction in the number of bacteria in the pharyngeal mucus to the extent of 80 or 90 at the end of the first hour, but after another hour the numbers were nearly, or quite, as great as at first. According to the results so far obtained medical izal was best *in vitro* and permanganate of potassium best *in vivo*, 1 in 200 of permanganate of potassium being rather irritating but most efficient, 1 in 1000 not irritating and fairly efficient, whereas 1 in 10,000 of permanganate of potassium showed some reducing effect one hour later but not (as 1 in 1000) still perceptible two hours later.—Dr. T. J. Horder considered that a careful study of the sporadic cases might throw much light on the origin of epidemics. Books described them as mild, but they were often *foudroyant*, as that of a medical man who recently was attacked at a hotel and died within 48 hours. His spinal fluid swarmed with the cocci, but there had not been time for the development of meningeal phenomena.—Dr. F. E. Fremantle regretted that no official inquiry was being conducted in Nigeria where, as he had heard from his brother, the natives were dying by thousands and several medical men had succumbed.—Dr. Tatham cautioned the members against attaching much value to the official returns of the mortality; the diagnoses were most untrustworthy.—Dr. Farrar, in reply, said that not only sporadic cases but epidemics might be caused by other organisms than the meningococcus of Weichselbaum.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

—A meeting of the Northern and Midland division of this society was held at the Borough Asylum, Rowditch, Derby, on April 19th, at the invitation of Dr. S. Rutherford Macphail, who presided.—After routine business there was some discussion on the proposal to unite with the London medical societies in forming a Royal Academy of Medicine. The following motion was carried:—

> Seeing that the Medico-Psychological Association is a national organisation with membership in England, Wales, Scotland, and Ireland, and that the proposed Academy of Medicine appears to be a purely London institution, the Northern and Midland division does not see how any affiliation is possible.

—Dr. Nathan Raw (Liverpool) read a paper on the Mental Disorders of Pregnancy.—Dr. John Richards (Leicester) read a paper on the Histology of Some Cerebral Tumours, in which he first gave a brief account of the clinical histories of three cases of cerebral tumour and then considered their histological features in detail. The first two were cases of rapidly growing tumours of under 12 months' duration and scarcely to be distinguished microscopically from small round and spindle-celled sarcomata. The tumour in the third case was probably of several years' growth, and was composed of well-formed glial cells and fibres closely resembling the normal elements of the neuroglia. Dr. Richards dissented from the view that gliomata were derived entirely from epithelial tissue and held that neuroglia elements also took a part in their formation.—Dr. W. Harding (Northampton) then opened a discussion on the Training and Registration of the Asylum Nurse. After stating what he considered ought to be the minimum training of an asylum nurse he mentioned that a three years' course of training had been in existence at Berry Wood for 16 years but that only about 16 per cent. of the nurses who entered the service gained the certificate. He spoke in strong terms of the inadequacy of the system of training and examination of nurses carried on by the Medico-Psychological Association. He pointed out that the only thing in which there was uniformity was the written examination, the least important method of gauging a nurse's efficiency. There was, however, no uniformity in the more essential parts of the examination while the candidate might actually have

had no practical sick-room training at all. He affirmed that the ignorance of some holders of the certificate proved this fact. The value of the certificate was therefore indefinite and it conveyed no indication of the knowledge and experience of the holder, who might be well equipped for her work or who might be the reverse. Thus a great injustice was done both to the able and well-trained women holding the certificate and to the public who had no satisfactory guide to the capacity of the nurse they might employ. It was therefore absurd to claim that the restriction of the right to register to the holders of the certificate of the Medico-Psychological Association was any guarantee of efficiency, but rather the reverse. While recognising and giving full credit to the association for its past work with regard to nursing, he urged the unfitness of a self-elected body of medical men to act as the sole arbiters to decide what the training and examination of a mental nurse should be. It was absurd that no one, however able and interested, should have anything to say on the question of the nursing of the insane unless he or she were a member of the association. Its education committee contained no representative of the public, of general nursing, or of the mental nurses themselves. He referred to the report of the Select Committee of the House of Commons on the registration of nurses and pointed out the different treatment allotted to hospital nurses as compared with asylum nurses. He advocated the representation of asylum matrons and nurses on the central body and held that this body should exercise the same supervision over the training of nurses in asylums as it would do in hospitals. He also argued that it would not tend to progress in nursing if the qualification for registration in nursing mental cases were restricted to the certificate of the Medico-Psychological Association. He supported the view that the qualification for registration should not be restricted to any one certificate but should be such as might be approved by the central body, thus approximating asylum nursing training to that of hospitals.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—A meeting of this society was held on April 20th, Dr. J. Porter Parkinson being in the chair.—Mr. W. Milner Burgess showed a case of Psoriasis Guttata in a healthy looking boy, aged six and a half years. The spots commenced when the child was five years of age. They were best marked on the chest, the abdomen, and the anterior and inner surface of the thighs and back.—Dr. Edmund Cautley exhibited a case of Atelectasis of the Upper Lobes of both Lungs occurring in a female infant born at full time and now aged 31 days. There was no history either of cyanosis at birth or of attacks of lividity. There had been cough for two weeks.—Dr. R. M. Beatty (Belfast) read notes of a case of Chloroma in a young child for Dr. J. McCaw (Belfast). The patient, who was aged 18 months, was admitted to Belfast Hospital for Sick Children on Oct. 30th, 1905, with a history of having been ill for three weeks. On admission the child seemed to be well developed and well nourished. He was markedly anæmic and had a peculiar frog-like appearance, due to proptosis, to swelling and ecchymosis of the eyelids, and also to swellings of about the size of a Tangerine orange in each temporal fossa. The proptosis and swelling were greater on the right side than on the left. The swellings were hard, dark coloured, and gave no evidence of having fluid contents. A tumour of the size of an egg was situated over the upper part of the sternum, similar to those in the temporal fossæ. The glands in the groin were swollen, hard, and black coloured, but not tender. The axillary glands were slightly enlarged. The lower end of the left femur was swollen and very tender on movement. The gums were not healthy but were neither swollen nor spongy. The heart and lungs were healthy; there was no enlargement of the liver or spleen. The urine was normal and the bowels were open. The child's temperature was 99·4° F. He became gradually worse and died three days later. No post-mortem examination could be obtained. An examination of the blood showed marked variation in the size of the red cells, which varied in diameter from 5μ to 11μ. Two-fifths were over the average size and some were undoubtedly megalocytes. Many of the normoblasts were in mitotic division.—Mr. Robert Campbell (Belfast) read a paper on Inguinal Hernia in Children, giving an analysis of 305 operations for radical cure. He said that it was generally admitted that treatment by trusses was uncertain in its results and prolonged and irksome to the patient, whereas by operation a permanent and complete cure could be obtained within a fortnight. He quoted statistics to show that 34 per cent. of his cases were operated on under six months of age and 44 per cent. under one year. He thought that the danger of sepsis in infants had been greatly exaggerated. Only two out of the 305 cases had been attended with suppuration. In referring to the contents of the sac he said that the frequency with which the cæcum and vermiform appendix descended in children was remarkable. He mentioned two cases in which the appendix was found adherent at its tip to the bottom of the sac; and another case in which a large Meckel's diverticulum was in the same condition. Strangulation was not frequent or acute in children. He had operated on 16 cases; most of them were under one year of age, two being 21 and 24 days old. As regards after-treatment his usual plan was to remove the stitches on the fifth day and paint the wound with collodion. The mortality should certainly not exceed 0·3 per cent. The radical cure of hernia in children might, therefore, as regards risk be classified with many so-called minor operations.

CORK MEDICAL AND SURGICAL SOCIETY.—A general meeting of this society was held on April 11th, Dr. R. P. Crosbie, the President, being in the chair.—Dr. J. Cotter read notes of a case of Ectopic Gestation. The patient was a woman, aged 36 years, and had been married nine months. Menstruation was regular up to Nov. 20th, when she missed a period then due. A week after this the period came on, heavier than usual, and lasted four or five days. On Dec. 4th she experienced severe pain in the lower part of the abdomen and felt as if something had given way inside. She became very faint and vomited. A week after a swelling in the lower abdomen appeared which gradually increased. When first seen by Dr. Cotter she was profoundly anæmic, with raised temperature and pain in the lower abdomen, where there was a fluctuating tumour. Per vaginam fluctuation could be felt over a swelling in Douglas's pouch and the uterus was pushed forward. He operated on Dec. 24th, first tapping the tumour through the posterior fornix, and got nothing but pure blood. The abdomen was then opened by mesial incision and what looked like a large ovarian cyst immediately presented. On opening it a large collection of blood, fluid and clotted, escaped, the clots being ladled out with the hands. At one side of the cyst wall, somewhat in the situation of the outer end of the left Fallopian tube, was what appeared to be a lump of organised lymph. A portion of this was removed and Dr. A. E. Moore reported that it showed chorionic villi and decidual tissue. The cavity was packed with iodoform gauze and recovery was uninterrupted. Dr. Cotter remarked on the great rarity of such cases and thought that this was a tubal abortion, as there was no evidence of a rupture of the tube.—Dr. Cotter also read notes of a case with obscure abdominal symptoms. A man, aged 20 years, after a few days of malaise, had acute pain in the abdomen with vomiting and great collapse. There were tenderness and some rigidity over the right iliac fossa. Thinking the appendix implicated he opened the abdomen and beyond some serous effusion found nothing abnormal. The patient sank and died the next day. On post-mortem examination the pancreas was found greatly enlarged and somewhat bile-stained, with a peculiar "marbled" marking of its surface. There was no evidence of inflammation or degeneration and the cause of death remained unknown.—Dr. H. R. Townsend read notes of a case of Acute Appendicitis in a girl, aged ten years. He saw her the day after the onset of symptoms. There were severe paroxysms of pain referred at first to the umbilicus and later to McBurney's point. He found a deeply congested appendix which he removed. Dr. Moore examined the viscus and found unmistakable evidence of early pus formation. Dr. Townsend said the case illustrated the necessity for instant operation in acute cases.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held at Manchester on April 27th, Mr. R. Favell, the President, being in the chair.—Dr. J. E Gemmell (Liverpool) showed a Fibromatous Tumour of the Labium Majus whose central portion was of the size of a large orange and which had extensions of considerable size into the buttock and also toward the inguinal ring. Dr. Gemmell also described two cases The first patient was 44 years of age, had been married 25 years, and had had ten pregnancies. She complained of pain, abdominal swelling, and interference with

the bladder and rectum. Two masses reaching the umbilicus were felt in the abdomen, the larger being continuous with a mass filling the pelvis. On opening the abdomen the larger mass was found to be a cervical fibroid, the smaller one being the uterine body. The fibroid was enucleated. An opening was made into the vagina and the bed of the tumour was drained into the vagina by gauze packing, the peritoneal cavity being completely closed. The central portion of the tumour was undergoing a form of degeneration closely resembling sarcoma. The second patient was 47 years of age and the mother of seven children. She complained of an abdominal swelling of six months' duration. Menstruation was regular. The tumour was a fibroma of the ovary weighing 4 pounds. The abdomen contained some ascitic fluid.—Dr. D. Lloyd Roberts (Manchester) mentioned the case of a patient, aged 28 years, who was admitted to hospital at the fifth month of pregnancy with a Retroverted Uterus. There had been dribbling of urine for five days and on a catheter being passed 80 ounces were withdrawn. The bladder was kept empty but necrosis of a portion of its wall occurred and the patient died five days later.—Dr. W. Blair Bell (Liverpool) showed some Light and Useful Retractors for Pelvic Surgery, the blades being constructed of stiff wire and having large fenestræ.—Dr. H. Briggs and Dr. J. H. Willett described two cases of Multiple Fibromata in which there was polypus formation due to the extrusion of fibroids into the uterine cavity, accompanied by adeno-carcinoma of the endometrium.—Dr. A. Stookes (Liverpool) mentioned a successful case of Cæsarean Section for Pelvic Contraction in which the pulse suddenly ran up to 160 per minute at the end of the operation. The same evening the patient's temperature was 103° F. and the pulse 140 per minute. No cause for this could be ascertained and the patient's condition became normal within six days.—Dr. W. Walter (Manchester) showed a specimen of Pyosalpinx with Adherent Appendix Vermiformis.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on April 24th, Dr. A. Mantle being in the chair.—Dr. A. Bronner showed: (1) A case of Cerebellar Abscess; and (2) a case of Plastic Operation for loss of the Left Nasal Ala.—Dr. T. W. Hime showed an Improved Wash Bottle.—Dr. F. W. Eurich showed a patient with Erb's Paralysis.—Dr. Bronner read a paper on Epistaxis, in the course of which he drew special attention to the following points: (1) in all cases of epistaxis the nares should be carefully examined; (2) the bleeding point would in most cases be found to be on the anterior part of the nasal septum; (3) that epistaxis was often due to constitutional disease and to nasal obstruction; (4) it was very dangerous to leave a plug in the nares for more than 24 hours; (5) before and after any intra-nasal operation the nares should be, so far as possible, thoroughly disinfected and all instruments carefully sterilised and the nostrils then plugged with antiseptic gauze for 24 hours to prevent hæmorrhage, especially if adrenalin had been used; and (6) the extreme usefulness of the application of hot water, ferripyrin, and peroxide of hydrogen for arresting hæmorrhage.—The paper was discussed by Dr. T. J. Wood, Dr. W. Mitchell, Dr. Hime, Mr. R. Mercer, and Dr. Mantle.—Dr. Bronner then replied.—Dr. Mitchell read notes of a case believed to be Internal Anthrax treated with Sclavo's serum. The patient recovered. He pointed out how impossible it was to discover the bacillus in the blood until just before death and how important it was, therefore, in any case of suspected internal anthrax, to begin serum treatment early and to use large quantities. He insisted that they had as much right to diagnose internal anthrax from symptoms only as they had to diagnose many other well-known diseases where the bacillus was not in evidence—e.g., scarlet fever and measles. It was manifestly unfair, he said, to say a case was *not* internal anthrax because it recovered.—The paper caused a very interesting discussion, in which Dr. J. H. Bell, Dr. Eurich, Dr. Hime, and Dr. H. J. Campbell took part.—Dr. Mitchell then replied.

LARYNGOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on April 6th, Mr. Charters J. Symonds, the President, being in the chair.—Dr. H. J. Davis showed a case of Sudden Loss of Voice of 14 days' duration, for diagnosis. The left cord was fixed. Opinions expressed were in favour of it either being due to tubercle or syphilis.—Dr. Davis also showed a man suffering from Nasal Obstruction following Facial Paralysis. The condition had improved under electrical treatment.—Dr. E. B. Waggett exhibited a case of Absence of the Right Choana.—Dr. StClair Thomson exhibited a patient, aged 16 years, with Laryngeal Stenosis. The case was shown for diagnosis, which rested between functional spasm or bilateral paralysis. He was inclined to view the case as one of functional spasm.—Dr. A. Logan Turner exhibited specimens and drawings showing various pathological conditions of the Nose and Throat.—Mr. P. R. W. de Santi showed a patient with a large Cauliflower Growth of Malignant Nature in the Naso-pharynx and an enlarged deep-seated Gland in the Neck. The case was regarded as inoperable. It was recommended to put the patient on iodide of potassium.—The President showed a patient with Carcinoma of the Naso-pharynx, which he regarded as inoperable.—Cases were also shown by Mr. H. W. Carson, Dr. E. Furniss Potter, Dr. J. Donelan, and Dr. J. Dundas Grant.

THERAPEUTICAL SOCIETY.—A meeting of this society was held on April 24th, Sir T. Lauder Brunton being in the chair.—Dr. James Burnet read a paper on the Therapeutic Action of the Iodides, showing that they were alteratives which influenced metabolism and secretion. He said they had long been used against syphilis and scrofula and more recently for gout, rheumatism, aneurysm, and arterio-sclerosis. They were formerly supposed to act by dilating arterioles and diminishing the blood pressure but they had no effect on the blood pressure or pulse, though they promoted the coagulation of the blood. He found iodopin, iodine with sesame oil most effectual injected under the skin, as this did not cause any gastric disturbance and the iodine was slowly set free by oxidation. It relieved arterio-sclerosis by diminishing the uric acid dissolved in the blood and thus relaxed arterioles and relieved aneurysm, if syphilitic, by removing pathological effusion and counteracting the poison. In angina pectoris it must be given in large doses, 60 grains daily for months. It was most useful in chronic pulmonary diseases, especially fibrosis and emphysema, relieving dyspnœa and liquefying the bronchial secretion, and it was best given in doses of 15 grains at bedtime. In bronchial asthma doses of ten grains every two hours were very useful either by relieving spasm or freeing the blood from uric acid. In syphilis it was most useful from its antitoxic powers and its eliminative action, particularly in affections of the nervous system and headache. In locomotor ataxy 120 grains had been given daily with the best results. It had also been used with success in cases of intermittent fever, puerperal fever, and erysipelas. In chronic rheumatism, neuralgia, lumbago, and sciatica iodide of potassium was often useful, probably by diminishing the uric acid dissolved in the blood; it was best combined with salicylic acid, which eliminated this acid. In cases of effusion, especially from interstitial nephritis or cirrhosis, iodides often were of service. In lead or mercurial poisoning they removed the metal from the tissues and caused its excretion. In simple goitre they were of great service if used early but not in exophthalmic goitre. The iodide of sodium was less depressing than that of potassium.

Reviews and Notices of Books.

The Bacteriology of Peritonitis. By LEONARD S. DUDGEON, M.R.C.P. Lond., Bacteriologist to St. Thomas's Hospital, Director of the Louis Jenner Clinical Laboratory and of the Pathological Laboratories, St. Thomas's Hospital, &c.; and PERCY W. G. SARGENT, M.A., M.B., B.C. Cantab., F.R.C.S. Eng., Surgeon to Out-patients, Victoria Hospital for Children, Chelsea; late Resident Surgeon and Surgical Registrar, St. Thomas's Hospital, &c. London: Archibald Constable and Co. 1905. Pp. 243. Price 7*s.* 6*d.* net.

THIS work formed the basis of the Erasmus Wilson lectures for 1905, the main teachings of which were summarised in a leading article at the time.[1] The book is welcome as being amongst the first fruits of the establishment of clinical laboratories in connexion with hospitals, being an example of work constituting an advance in medicine and surgery which it is the proper function

[1] THE LANCET, April 1st, 1905, p. 868.

of such laboratories to produce over and above the ordinary routine examination of morbid products necessary for the immediate treatment of the patient.

The subject matter of the book is arranged on a clinical basis, the varieties of peritonitis caused by different clinical accidents, such as disease of pelvic organs, perforation of hollow viscera, appendicitis, and so on, being treated in successive chapters. A description of the technique employed shows that an examination of the peritoneal exudation was made by culture and by smear preparations not only at the seat of the primary lesion but, on every possible occasion, at points distant from the original focus, and the results obtained show the importance of this method and how extremely misleading the examinations would have been had they been confined to the neighbourhood of the original lesion.

Among the more important bacteriological results of the inquiry are the discovery of the frequent presence and apparent clinical importance of a staphylococcus albus believed to be identical with Welch's staphylococcus epidermidis albus, the rehabilitation of the bacillus coli as one of the most important organisms in the causation of peritonitis, and the failure to find any support for the teaching that anaerobic organisms play the most important part in some varieties of peritoneal infection. In gastric ulcer a streptobacillus was isolated in every case from the edge of the ulcer, but it is not pretended that this organism has been proved to be the cause of the disease. The staphylococcus albus is an organism of low virulence, found at points of the peritoneum distant from the primary lesion and leading to an active local leucocytosis and phagocytosis. Its presence is regarded by the authors as justifying a favourable prognosis, as modifying largely the virulence of the bacillus coli often associated with it, and as contra-indicating too active flushings and washings of the peritoneum in the treatment of those cases in which it occurs and in which it sets up a protective phagocytosis. The influence of this organism is the subject of a special experimental research incorporated in this book. The bacillus coli, as has already been mentioned, is regarded as of great importance in the causation of peritonitis and especially in that form of it which is associated with appendicitis. The virulence of the organism in different cases and of the different strains isolated from the same case varies greatly. A startling result obtained by the authors was that 55 out of 74 strains of bacillus coli isolated were non-motile and motility was not acquired by cultivation on various media nor by passage through animals. The occurrence of this organism alone and not localised is of bad augury for the patient, but the prognosis is improved if the bacillus coli is localised and especially if it is associated with the staphylococcus albus. Other organisms found were the streptococcus pyogenes and the diplococcus pneumoniæ leading to an invariably fatal result, and the bacillus pyocyaneus also of serious import. A short chapter deals with the rôle of the phagocytes in peritonitis and the conclusion is reached as the result of experiment that not only is the small lymphocyte phagocytic but that the eosinophile cell possesses phagocytic properties of the greatest importance.

The book is a valuable contribution to the scientific study of peritonitis and forms a solid basis for conclusions of value for prognosis and treatment.

Précis de Diagnostic, Clinique, Microscopique et Parasitologique. Par les Docteurs JULES GUIART et L. GRIMBERT. Paris: F. R. de Rudeval. 1906. Pp. 960. Price 15 francs.

THE authors of this manual state that no similar work exists in French medical literature. They have undertaken to produce a book dealing with modern methods of clinical investigation which owe their origin to chemistry and other branches of natural science. In the preface, which naturally, perhaps, tends to the glorification of their subject, they refer somewhat slightingly to those members of the medical profession who are content to ignore the advances of the methods of the laboratory. In fact, they compare the point of view to that of a surgeon who in these days might scorn the methods of antisepsis and asepsis. While we may urge that perhaps they attach too little importance to clinical methods of investigation of disease, there can be no doubt that they have succeeded in producing an admirable handbook. They deal in turn with general methods of investigation, such as bacteriology, in connexion with which they describe in detail the various methods of fixation, colouration, and measurement. In the second part of their volume, in separate chapters, they deal with the following subjects: the blood, pus, pathological liquids, milk, nasal secretions, and expectoration; the examination of material derived from the mouth, the pharynx, the stomach, the intestine, and the liver; with diseases of the skin, the ear, the eye, and the genital organs, and with the urine; while a concluding chapter is devoted to the various reagents employed in chemical analyses. The volume is profusely illustrated, both with plates of instruments employed in the various methods of research and with numerous coloured plates which fairly depict microscopical appearances; these latter are perhaps too diagrammatic—in fact, the illustrations generally sacrifice colour to clearness.

In the section relating to the examination of the blood the information is full and the directions are lucid, while throughout the volume the ease of diction facilitates the work of the student. The principle adopted is to describe normal conditions at some length before proceeding to the consideration of the modifications due to disease. Thus in the section on the blood the methods of enumerating the red corpuscles are given at length before the variations in size and shape are described. Necessarily much space is devoted to the modifications which leucocytes undergo. Then non-parasitic diseases of the blood are dealt with and the bacteriology is considered, typhoid fever, cholera, plague, dysentery, Malta fever, pneumonia, and tuberculosis being described under the heading of Serum Diagnosis. Much space is given to the description of the changes in the blood in malarial conditions, the diagrams in this connexion being extremely serviceable. Small figures are given of trypanosoma Gambiense, spirochæta Obermeieri, as well as of other parasitic conditions affecting the blood. The section relating to pus appears somewhat brief after the fulness of detail of the preceding section. Greater space is, however, given to a description of the methods of examining various pathological liquids. Thus the modifications of fluid removed from the pleural cavity are described in detail with the assistance of numerous illustrations. Reference may also be made here to the description of the examination of the fluid removed from hydatid cysts. The illustrations of the scolex and of the hooklets should be especially welcome to students. It is interesting to find that much space is devoted to the macroscopic examination of expectoration from which valuable information may be derived without the necessity of laboratory investigation. Full details are, however, given of the microscopic appearances connected with different diseases, the bacteriology also being elaborately supplied with diagrams.

We do not attempt to indicate categorically the fulness of detail in this text-book. We would, however, call attention to the excellence of the illustrations of the parasites connected with the various affections of the skin, while we must confess to some surprise at the tests for albumin in the urine, which do not strictly accord with those commonly employed in this country. The latter are mentioned in small print as being of minor importance. In conclusion it may be remarked that, although due cognisance is taken of

all recent work, the text is rarely burdened with references. This has the advantage of rendering the book more easily readable but the disadvantage of depriving us of a bibliography from which the original sources of information can be consulted.

Scientific Memoirs by Officers of the Medical and Sanitary Department of the Government of India on the Standardisation of Antityphoid Vaccine No. 21. By Captain GEORGE LAMB, M.D. Glasg., I.M.S., Director of the Pasteur Institute of India, and Captain W. H. C. FORSTER, M.D. Edin., D.P.H. Cantab., I.M.S. Calcutta: Office of the Superintendent of Government Printing, India. 1906. Pp. 15. Price 6 annas, or 7*d*.

THE authors truly state that vaccination against typhoid fever has now taken its place amongst the measures of preventive medicine, its achievement being principally due to the brilliant work of Wright. That success has crowned his efforts is certain from the facts (1) that three scientific committees successively convoked to examine into the matter have decided that the statistical evidence is sufficient to show that the incidence and case mortality are reduced by inoculation; and (2) that the Germans have adopted it in the case of troops proceeding on foreign service to Africa. One of the most important problems, however, with regard to this measure is the elaboration of some method of standardisation. This problem is considered in the memoir under review.

The authors first demonstrate the various methods by which the antityphoid vaccine may be prepared, resulting in the production of "broth vaccine," "agar vaccine," or "filtrate vaccine." They then proceed to the question of standardisation and tell us what is meant by the term, using the definition of Wright for this purpose—namely, "Standardisation involves on the one hand the determination of the amount of immunising element contained in a standard volume of the vaccine material; on the other hand, the adjustment of the dose administered to the resisting powers of the man or animal submitted to the inoculation." The first problems to be settled are the nature of the immunising element of the vaccine and the manner in which it accomplishes its object. The immunity induced by antityphoid vaccination is, in the main, a bactericidal immunity due to an increased power of the individual to kill the typhoid bacteria by his body fluids, which increased power is again due to an increase in the specific amboceptor or immune body in the body fluids. The body also after inoculation probably acquires a habit of producing these protective substances on a stimulus of a much slighter nature than before the inoculation; in addition there is no evidence of an antitoxic immunity. The power of any vaccine to increase the quantity of immune substance in the body fluids depends upon the number and avidity of the receptors contained in a unit quantity of the vaccine, and therefore, when the proportion of free immune body which can be fixed by the receptors of the vaccine without danger to the organism can be estimated, the problem of determining the optimum dose of an antityphoid vaccine will be solved. Towards this end therefore must first be established a method of measuring the receptor content of any vaccine, which is the true basis of standardisation of all antityphoid vaccines. The authors examine in this light the methods previously used and point out the various objections that can be raised to them. They then state that in order to comply with the first proposition of the definition of standardisation above stated the absolute receptor content of a vaccine must be determined. Next they show that the adjustment of the dose of any antityphoid vaccine to the average resisting powers of man can only be estimated by direct experiment, and such an experiment is already in progress under the direction of Lieutenant-Colonel W. B. Leishman. The authors conclude their interesting memoir by detailing a method which they have elaborated with the view of standardising every vaccine used against a standard vaccine obtained as the result of this direct experiment. The technique is duly set forth and as the result of their researches they conclude that the broth vaccines possess three and four times the bactericidal power of the filtrate vaccines.

This volume of the Scientific Memoirs, though short, contains an immense amount of intricate work and reflects the greatest credit on the authors.

Small-pox, its Dissemination and Prevention: Thesis for Degree of Doctor of Medicine. By FRANCIS JOSEPH STEVENS, M.A., M.D. Oxon., M.R.C.S. Eng., D.P.H. R.C.P.S. Eng., sometime Exhibitioner of Exeter College, Oxford; Medical Officer of Health to the Metropolitan Borough of Camberwell, &c. London: Henry Frowde. 1906. Small 8vo, pp. 128. Price 2*s*. 6*d*. net.

Dr. Stevens's graduation thesis consists of a short introduction and three chapters, entitled "I. The Dissemination of Small-pox"; "II. Aerial Convection"; and "III. The Prevention of Small-pox, Inoculation and Vaccination, Vagrancy." Chapter I. begins by a criticism of the view that small-pox is one of the most infectious of diseases. A variety of instances are quoted in which exposure to infection did not result in attack, as, for example, an out-patient at the Edinburgh Royal Infirmary with the rash fully out who yet caused no extension of the disease, and a recently confined woman suffering from unrecognised variola in Camberwell who held a constant levee but infected "only eight of her neighbours." Notwithstanding all such evidences of slightness of infectivity, especially of mild cases, Dr. Stevens argues that it is possible that in presence of a mild type of epidemic, unrecognised cases may spread the infection far and wide, and he says that there can be little doubt that perambulation of mild cases is the chief cause of the dissemination of small-pox in London. Excepting as to their clothing, he condemns the view that "contacts" are a danger to the community, a view which, he says, has apparently been advocated in all seriousness by Littlejohn and is supported by Priestley and in Leicester, where the so-called system "includes this quarantine for 14 days as one of its regulations."

The reader turns to the chapter on Aerial Convection with some interest to learn whether the author holds that such cases as he has instanced of the frequent escape of "contacts" from infection, especially from mild cases, tend to support, by exclusion, the theory of aerial dissemination and to discredit the view that hospital influence is always to be explained by intercourse. The answer is in the negative; Dr. Stevens here holds that intercourse is the sole explanation. Concerning the influence of aggregation of cases, he says that Power at first arrived at the conclusion that recent epidemics had shown a nearly constant relation between the amount of hospital admissions—especially a sudden increase in the number of acute cases—and the prevalence of small-pox, but that in a later report in 1884 "he comments on a new factor" which had appeared—namely, "that the excess of small-pox incidence on a neighbourhood was most remarkable when the total admissions to hospital had not exceeded nine." Regarding the influence of wind and weather Dr. Stevens states that there is a somewhat startling difference in the conclusions of those who hold the aerial theory, Power and McVail pinning their faith to calm weather and fogs, while other observers (apparently Buchanan and Thresh, for example) "contend a wind much more readily favours the conveyance of the poison." Dr. Stevens's own conclusion regarding the manner in which this subject has been approached by those from whom he differs is that "indeed, from the diversity of views on the subject of weather influence it would seem as if those existing at the time of the supposed aerial

convection are those picked out by the supporters of that theory as especially favouring it." But Dr. Stevens must not be classed here with the antivaccinationists who, he complains, "abuse the plaintiff's attorney," for it is only people with a bad case who resort to this, and, of course, Dr. Stevens's case is good. Further, he holds that "if aerial convection be an established fact it should show its influence round each and every small-pox hospital," but as for himself he urges that "any cases, however, in which the special incidence is to the north-east of any hospital should be rather discounted on account of the prevailing wind being from the south-west." We quote this without venturing to expound its meaning.

Looking to Power's view (as interpreted by Dr. Stevens) that the influence of a hospital "was most remarkable when the total admissions had not exceeded nine," it is not surprising to be told that "the same divergent views that exist as to the influence of the wind also exist as to whether the vicinal increase is greater when there are many or few cases," though on the whole it appears to Dr. Stevens that importance is attached to aggregation, and this being so the presumption is that Power, pinning his faith to nine or less, must be himself in a small minority. Also "even the supporters of aerial convection are disposed to limit this danger to acute cases." Having in this fashion set forth and criticised the views of the aerialists, Dr. Stevens hopes that in future the Local Government Board "will allow some relaxation of their previous rules and will be guided rather by the likelihood of precautionary regulations being strictly enforced than by isolation of the hospital—a matter often both costly and difficult." But it looks rather doubtful in what direction this likelihood of strict enforcement of regulations is to lead the Board, for in explaining hospital influence Dr. Stevens has previously declared that "so long as there are nurses and porters they will have their friends outside and all the regulations in the world will not keep them in." The unlooked-for conclusion would therefore appear to be that "likelihood" means not merely "unlikelihood" but actual impossibility, and that in order to minimise mischief from utterly inevitable infringement of regulations hospitals should be exceptionally well isolated and that the Board should "relax" its present rule by no longer sanctioning hospitals which have anything like 600 people within half a mile's reach of the rebellious nurses and porters.

The writing indeed is in places very slipshod, and better things in this direction might have been expected from an Oxford graduate in arts and medicine. In one of the passages we have quoted there seems an obvious slip in grammar. Referring to diagnosis (p. 64), he writes, "although the medical man in attendance may strongly suspect the disease he is unable to certify on the evidence that in his opinion it is small-pox and the ambulance authorities will not remove him unless a definite statement to this effect is made." But what good this vicarious removal of the medical man would do is not explained. The valuable information in the book and the gallant attempt to be fair-minded are somewhat frustrated by inattention to the literary requirements.

LIBRARY TABLE.

Handbook of Anatomy for Art Students. By ARTHUR THOMSON, M.A. Oxon., M.B. Edin., Professor of Human Anatomy in the University of Oxford; Professor of Anatomy, Royal Academy of Arts, London. Third edition. Oxford: At the Clarendon Press. 1906. Pp. 450 and index. Price 16*s.*—Professor Arthur Thomson's admirable Handbook of Anatomy for Art Students has now reached its third edition, a proof, if need be, that the book has been found useful by that class for whom it is written. So excellent was the book in its original form that much could not be done in future editions to improve it. In the present edition but very little has been added to the matter of the text, but several new illustrations have been included and the plates have been reproduced upon a much larger scale. In former editions the key plates applied solely to a male figure. In the present edition a photograph of a female figure in the same position as that of the male has been added. We can only repeat that every art student should possess this book and even ordinary students of anatomy will learn a great deal from a perusal of it.

Old Sea Chanties. Collected and arranged by JOHN BRADFORD and ARTHUR FAGGE. London: Metzler and Co. Price 1*s.*—The chanty is almost extinct and we are very glad that some few of these beautiful old melodies have been preserved by Mr. Bradford and Mr. Fagge. The tonality of the first chanty, "Haul on the Bowlin'," is somewhat uncertain and gives a curious effect to the ear, but it is a singularly fine melody. All the songs—there are eight of them—would be admirable for singing at smoking concerts and other festive gatherings. They can be had arranged for chorus and orchestra as well as for solo, and in this form will be found to be an admirable addition to the library of choral societies.

JOURNALS AND MAGAZINES.

West London Medical Journal.—In the April number are contained some papers of considerable interest. Dr. Neville T. Wood discusses the Treatment of Constipation and Colitis by Paraffins and Agar, the principle involved being the addition to the intestinal contents of fatty or other substances which are not digested. The method seems well worthy of trial in obstinate cases. Dr. J. A. Coutts treats of some points in Infantile Scurvy, calling attention to the advisability of surgical interference in some cases in order to prevent necrosis of bone following extensive subperiosteal hæmorrhage, and Dr. E. Furniss Potter and Mr. Richard Lake contribute practical articles on aural troubles.

The Caledonian Medical Journal (April).—The experience gained from our own errors is sometimes bought rather dearly; it is more satisfactory to learn from those of others. Mr. James L. Waters, in an interesting if discursive article, endeavours to put his experience as to errors in diagnosis at the service of his medical brethren who should profit by the hints given. Dr. Duncan Macdonald concludes his paper on the Prevention of Pulmonary Consumption in the West Highlands, noting as causes of infection the inhalation of tuberculous dust and of tuberculous matter directly expectorated, as well as the occurrence of cases due to living in houses, theoretically disinfected, which had been occupied by consumptives, and to wearing of the clothes or sleeping in the beds of such patients.

Reports and Analytical Records FROM THE LANCET LABORATORY.

"TABLOID" BRAND PASTILLES.

(BURROUGHS, WELLCOME, AND CO., SNOW-HILL BUILDINGS, LONDON, E.C.)

WE have received specimens of tabloid pastilles which are a great advance on the ordinary medicated demulcent jujube. They are transparent and the demulcent basis dissolves slowly in the mouth. They are neatly packed in waterproof paper and tin boxes. The list of tabloid brand pastilles comprises a plain glycerine preparation, glycerine with black currant, tannin, cocaine hydrochloride, codeine, benzoic acid compound, red gum, rhatany, and so forth. The tabloid brand pastilles have a diameter about that of a shilling and are about a quarter of an inch thick.

BISQUITS OWN BRANDY.

(AGENCY: MERRITT, BIRD, AND CO., 11, HART-STREET, MARK-LANE, LONDON, E.C.)

THIS is excellent brandy, with a delicate elegant flavour characteristic of fine Cognac brandy. We can well believe the statement that it is 14 years old and that it is a genuine distillation of grape-wine. The results of analysis are in accordance with those given by a genuine Cognac brandy. The ethers amounted to 143 grammes per hectolitre of absolute alcohol present, while the total secondary products amounted to 314·00 grammes. The furfural amounted to exactly one gramme, a relatively small figure, indicating elimination of this substance by age. This brandy is clearly of excellent quality.

SAJODIN.

(THE BAYER CO., LIMITED, 19, ST. DUNSTAN'S-HILL, LONDON, E.C.)

Sajodin is described as "a perfectly tasteless and thoroughly efficient substitute for potassium iodide, free from secondary effects." It is the calcium salt of mono-iodo-behenic acid and has the composition represented by the formula $CaC_{22}H_{42}O_2I_2$. It contains 26 per cent. of iodine. The formula of behenic acid is $C_{22}H_{44}O_2$ and it occurs as a glyceride in oil of ben. In some German clinical reports sajodin is mentioned as an excellent therapeutic agent in tertiary syphilis, bronchial asthma, and arterio-sclerosis. Sajodin is a white powder insoluble in water and yields an abundance of iodine vapour on heating or when treated with nitric acid.

YAGHOURT (CURDLED MILK).

(A. E. EFSTRATIOU, 38, CHANDOS-STREET, ST. MARTIN'S-PLACE, LONDON, W.C.)

In the Paris notes in THE LANCET of Feb. 20th, 1904, p. 546, appeared an account of the milk preparation called Yaghourt which is consumed so largely in Turkey. In that country there is a great consumption of the milk of the buffalo, the common cow, the goat, and the ewe, but it is hardly ever used in a natural state. According to a paper read at the meeting of the Academy of Medicine the milk is kept at a moderate heat until its bulk is considerably reduced. After slow cooling the milk is treated with a ferment taken from the previous day's supply. In a few hours a curd forms which is called Yaghourt. The preparation is preferred to milk and it has a pleasant clean acid taste and is, of course, nutritious. Yaghourt, as well as many other oriental dishes, may be obtained at the above address, where they are prepared by a special pastrycook who hails from Constantinople. We made an analysis of one sample and the results showed that there were present 83·50 per cent. of moisture and 16·50 per cent. of dry solid matters containing the mineral, proteid, and fatty matters of the milk. The total acidity calculated as lactic acid amounted to 1·3 per cent. Yaghourt is thus a more concentrated preparation than ordinary milk and it is much more digestible. In the Paris note referred to it is stated that not only has yaghourt the nutritive value of milk in a small bulk but it also possesses a diuretic property which is useful in heart disease, in dropsy, and in the eclampsia of pregnancy. We also examined a nutritious sweetmeat made by the same Turkish pastrycook which is said to be made with the flesh of tender chickens, with milk, cornflour, ground rice, and sugar. This contained 74 per cent. of moisture, while the solid matters consisted of about 15 per cent. of proteid. There can be no doubt, therefore, that this preparation known as "taouk-oxou" represents a very nourishing article of food which, moreover, is very palatable.

ADALA FOOD.

(ADALA CO., 116 AND 117, HOLBORN, LONDON, E.C.)

Adala food is stated to be prepared in Norway from choice pieces of Adala Kap fish caught in the Polar seas. Most people entertain a prejudice against fish preserved in tins, but we find that this fish food was not only in an excellent state of preservation but showed absolutely no trace of metallic contamination. Moreover, the flavour of the fish prepared in the way directed was quite good. We understand that the fish soon after it is caught is put into tins and then sterilised; it makes an excellent and cheap nourishing food.

DRY GIN.

(J. & W. NICHOLSON AND CO., LIMITED, 195, ST. JOHN-STREET, CLERKENWELL, LONDON, E.C.)

The chief merit of this spirit consists in its remarkable purity; it is practically free from acidity and extractives, the latter amounting to only 0·04 per cent. As to secondary products, only ethers occurred in important quantity, while there were mere traces of higher alcohols and aldehydes and absolutely no furfural at all. The flavour of the spirit is characteristically dry, certainly as regards sugar, but it has that sweetness peculiar to gin of the finest description. Gin, as is well known, possesses diuretic properties and is one of the most useful stimulants in many pathological conditions, being absorbed and eliminated from the system with great rapidity.

Looking Back.

FROM

THE LANCET, *SATURDAY*, May 3rd, 1828

ON THE CAUSE OF THE DIFFERENCE IN THE STRENGTH OF THE RIGHT AND LEFT ARMS.

M. Lecomte lately read before the Institute of France, a paper on the superiority of strength of the right over the left arm. This physician thinks the difference owing to the position of the fœtus in the womb during the latter months of pregnancy. In by far the larger number of cases, the position of the child is such, that its left shoulder, arm, and the whole of the left side, are pressed against the bones of the pelvis; from this pressure, a contraction of the blood-vessels (a kind of atrophy of the left sanguineous system) ensues. The weakness of the left side, then, arises from this congenital disposition. According to M. Lecomte, it is the right side which is the weakest, when the child is placed in the uterus in the contrary direction, which accounts for those who are left handed.

WE beg to direct the attention of the reader to the following valuable communication from Dr. BUSHE, in which it will be seen that *another cure* of carotid aneurism has been effected by tying the vessels on the distal side of the tumour.

A Case where the Right Carotid Artery was successfully Tied on the distal side of a large Aneurismal Tumour. By GEORGE BUSHE, M.D., of the Royal College of Surgeons in Ireland, and Assistant Surgeon to the Forces.[1] Some person, signing himself "A Surgeon of Chatham," sent a superficial account of this case to the Editor of THE LANCET, written ten days after the operation, in which he stated, that he was induced to do so, fearing that the despotism which reigns in the Medical Department of the Army, might prevent my tendering it to the public; therefore, I feel compelled to inform that Gentleman, that if he will look to the records of medicine and surgery, he will find, that some of our military medical officers have, since the appointment of the present Director General, by the publication of their experience, contributed not a little to the improvement of our art, and that so far from there being a wish in the department to crush merit, every opportunity is afforded the most junior officer to advance himself (as far as military regulations will permit) by laudable exertions.[2]

EPIGRAM.[3]

On the Patient who suddenly decamped from Guy's Hospital, and passed over to St. Thomas's."

Rash, thoughtless man! ah, whither dost thou fly!
If death appal thee, why *such haste to die?*

Bath, April 28th, 1828.

---

[1] Here follows the communication, which occupies five columns of THE LANCET and has not been transcribed.
[2] See "Looking Back," in THE LANCET, Sept. 30th, 1905, p. 971.
[3] See "Looking Back," in THE LANCET, April 21st, 1906, p. 1118.
* Vide LANCET, No. 241, p. 48.

THE LANCET.

LONDON: SATURDAY, MAY 5, 1906.

The Administration of the Vaccination Acts.

THE recent debate in the House of Commons upon the subject of what is erroneously termed "compulsory" vaccination was not an altogether edifying spectacle, more especially as those who could have enlightened the House as to the facts and as to the administration of the statutes were either absent or unable to speak. Mr. LUPTON'S proposal that "vaccination ought no longer to be obligatory on those who regard it as useless and dangerous" was a far from exciting, or even interesting, topic for debate, seeing that since the introduction of the Act of 1898 there is absolutely no compulsion upon those who can satisfy the magistrate that they have a conscientious objection to vaccination. That this is the case is shown by the dying out of the demonstrations which were not uncommon prior to 1898 and the absence of any unfomented and spontaneous feeling against the existing provisions. In the interests of truth and equitable legislation it is much to be regretted that neither Mr. WALTER LONG nor Sir WALTER FOSTER, both of whom are familiar with all the facts, were afforded an opportunity of bringing before the House the excellent results, in the country generally, of the working of the present Act, while we cannot but express our regret that the medical Members of the House did not evince some active interest in a subject which touches so deeply the health of the people.

In these circumstances the speech by Mr. BURNS must, we think, be regarded as a thoroughly statesmanlike pronouncement. Although we may have reason to differ sharply from him in the future we take this opportunity of congratulating him upon the administrative judgment which, as practically the Minister of Public Health, he displayed on this occasion. Mr. BURNS is, all must recognise, in a somewhat difficult position in matters which in their equitable adjustment call for scientific knowledge and an entire absence of passion, but his attitude has up to the present indicated a desire to master his subjects and to deal with them not solely for the benefit of the ignorant. He has obviously no sympathy with the loafer and has no desire to see the population replenished solely from the unfit. But he has, we know, the keenest sympathy with the fighter and with those who by their efforts have raised themselves from the mass. He has told the world in the brief autobiography contained in the last edition of "Who's Who" that he "came into the world with a struggle, struggling now, and prospects of continuing it," an intelligible if elliptical assertion which would indicate that he is not anxious to engender in those who work with their hands that helplessness and lack of self-reliance which promotes physical and moral degeneration. We interpret Mr. BURNS'S desire to remove the administration of the measure from the hands of the Poor-law authorities to one or another of the health authorities—i.e., the district councils or the county councils (or, perhaps, he would like to see both councils play their part)—as an intention to increase general sanitary efficiency, and we see no reason why the medical profession should not so regard it. We wish to see less of that misplaced emotionalism which so often characterises the proceedings of boards of guardians when dealing with questions which relate rather to public health than to charity. We much wish that the figures had been furnished during the debate which show that there is year by year a decreasing number of persons who have failed to comply with the very lenient provisions of the present vaccination statutes by obtaining either the vaccination of their children or a certificate of conscientious objection. This fact is doubtless appreciated by Mr. BURNS and he will perhaps, in justice to those who have administered the Act, make it public when a fitting opportunity arises. As an instance of the remarkable change wrought in some places by the measure of 1898, which we have never pretended to regard as absolutely perfect, we may briefly refer to the position of affairs in the borough of Halifax, for the figures concerning which we are indebted to Dr. ARTHUR DRURY, the public vaccinator. Dr. DRURY tells us that some years ago "organised opposition was in great force, many demonstrations were held against vaccination. ..... A generation of parents had sprung up who knew nothing of vaccination from their own personal observation but who had been terrorised by the alarming statements and misrepresentations made by leading and active anti-vaccinationists." The annual number of primary vaccinations for the four years preceding 1898 was 203, 202, 158, and 199; those for the last four years (1902–05) were 1083, 2198, 2430, and 2816, a result which has been attained, we are informed, "without precipitating any hostile demonstration, and organised opposition, if it exists, is dormant. A very small percentage of prosecutions have actually taken place. Of the comparatively few conscientious objections which have been applied for it is a fact that in a number of cases vaccination has been since resorted to, although exemptions have been previously obtained for the same children." Halifax has, in fact, defeated a motion for the repeal of the Vaccination Acts, as in many families where previously objection had been strong the vaccination of the youngest child has been followed by a voluntary request from the parent for the vaccination of the rest of the children. As Dr. DRURY remarks, "The provisions of the new Act have restored confidence in the public mind in a manner which could not have been attained under the old and less costly regulations."

Mr. BURNS, in the course of the inquiry which he has promised, will doubtless have regard to this experience of Halifax, recently a stronghold of the antivaccinationists, which is in no sense unique, and we feel quite satisfied that his inquiry will be a thorough and an eminently fair one. He reminded the House in the course of his speech that vaccination is not now compulsory, saying that

the only step necessary to remove, as it were, the last vestige of compulsion is to prevent the browbeating in which certain magistrates are prone to indulge. For our part, we would take the fact of the parent's presence before a magistrate, coupled with a statement that he had a conscientious objection to vaccination, as meriting the certificate of exemption for which he seeks. Discussions upon "conscience" between the educated and the uneducated are neither fair nor edifying. But we would insist upon the attendance of the parent before the magistrate. Those whose conscience involves a danger to their fellow subjects and, perhaps, enormous financial loss to the community in which they live, may reasonably be called upon to make some little sacrifice as regards time. The cost of the certificate should, we think, be purely nominal. With reference to the expense of administering the Vaccination Acts and as to the age at which vaccination might be carried out, we shall have more to say on a future occasion, but we trust that Mr. BURNS will extend his proposed investigation so as to bring out clearly, for purposes of comparison, the cost of small-pox outbreaks to local authorities and to the trade of towns in which such outbreaks have occurred, and that he will have regard to the cost to the community of the provision of the separate small-pox hospitals necessitated by our present unprotected condition. Such hospitals might be practically discontinued had we as a people the common-sense and moral force of Germany, which is so far the only nation to succeed by vaccination and revaccination in holding small-pox in check. All these facts and the literature thereto are at the disposal of Mr. BURNS, and his excellent medical department may be trusted to give him expert assistance.

Industrial Accidents: A Lesson from France.

THERE is a Bill at the present moment before the House of Commons having for its purpose the amendment and consolidation of the law in respect of the compensation of workmen for injuries suffered in the course of their employment.[1] The Bill does not give complete satisfaction, and we recommend to our legislators the perusal of a book lately published by Dr. VIBERT on the character, importance, and consequences of accidents occurring to workmen in the course of their occupations.[2] This work not only affords a new and interesting illustration of the general principle laid down by STERNE—that they "do these things better in France"—but also contains a large amount of suggestion calculated to be eminently useful to the many practitioners in this country who may be called upon to treat injuries to workpeople of a kind calling for compensation from their employers. The law upon this subject in France is of more recent date than that in England, but is already much more systematised as regards its application, and our neighbours have thoroughly recognised the importance of the scientific "expert" in assisting the legal tribunals in their work of equitable administration. The English Employers' Liability Act dates from 1880 and its administration leaves the settlement of disputed questions to the discretion of a jury, aided by such lights as the medical witnesses called respectively by the plaintiff and the defendant are able to throw upon the case; but the French methods of procedure, as described by Dr. VIBERT, appear far better calculated to secure substantial justice at a minimum of cost. The law was enacted in 1898 and under its provisions the workman who sustains an accident in the course of his occupation is treated by the physician of his own choice and at the expense of his employer, whose liabilities on this account are limited by a settled scale of fees. During incapacity from injury, and until he is either cured or left in some settled and permanent state of disability, the workman receives half-pay after the first five days; and he is compensated for permanent disability or impairment of usefulness in accordance with an elaborate scale in which almost every possible consequence of an accident is provided for and is assessed at a percentage upon the original value of the workman. The law makes provision for giving proper notices to all the persons affected and any differences concerning temporary payments are subject to the decision of a magistrate. When an injury has left any degree or kind of permanent incapacity, and the sufferer and the employer are able to agree touching the amount of the indemnity, their agreement is ratified by the president of the civil tribunal and is thereafter unassailable, but if they are unable to agree the case is submitted to the tribunal for adjudication and may be carried to higher courts by appeal. The first decision may also be reconsidered, after the lapse of three years, at the instance of either party, on the ground that the state of the sufferer has been shown by time to be either better or worse than was originally supposed.

An "accident of labour" is defined to be something sudden and unexpected, or manifestly abnormal in its occurrence, and therefore does not include what are described as "professional" maladies, more or less incidental to the industry pursued, such, for example, as lead poisoning in the case of painters or pottery workers. Dr. VIBERT quotes with approval the definition of Dr. THOINOT, which makes an accident comprise "every external wound, every surgical or medical lesion, every psychical nervous disturbance (with or without associated bodily lesion) resulting from the sudden effect of external violence intervening during work or in consequence of work, and every internal lesion produced by a violent effort in the course of work." He further points out that the term external violence must be made to include the effects of heat and cold, as in cases of sunstroke or of congelation. In any case in which the question at issue cannot be satisfactorily determined, either by the magistrate immediately after the accident, by the president of a tribunal called upon to ratify an agreement, by the civil tribunal, or by a court of appeal, recourse must be had to the advice of nominated experts, and for this purpose any practitioners who have attended the patient, as well as any who may be permanently employed either by the industrial undertaking in which the accident occurred, or by any assurance office concerned, are absolutely ineligible.

[1] THE LANCET, April 7th, p. 979, and April 21st, p. 1134.
[2] Les Accidents du Travail, Étude Clinique et Medico-légale des Affections Internes produites par ces Accidents, par le Dr. Ch. Vibert, Expert près le Tribunal de la Seine, &c.

The experts are sworn, unless this formality be waived by common consent of the litigants, and they hold a session at which the physician in charge of the case is expected to attend, and at which both the employer and the injured person are represented. They listen to all that can be told them, examine all certificates which have been given during the progress of the case, make every examination of the patient which seems to them to be required, and appeal at every step to the physician in charge and to the litigants as to whether there is anything else which they should do. They may make more than one visit, either to avoid fatiguing the patient by prolonged examination or in order to clear up any doubtful point, and they then privately settle their report and present it to the presiding authority concerned, describing the injury and giving their considered opinion as to the actual state and the probable future of the sufferer. Upon the materials thus supplied the decision of the tribunal will be founded; and the costs of the inquiry are limited by a legal tariff of the fees payable to all who are concerned.

A considerable time will probably elapse before an equally effective measure of assessing the results of accidents will be introduced into this country, and our "experts" will probably long continue their present practice of delivering independent and sometimes widely different opinions in the witness-box, opinions between which an absolutely ignorant body of jurymen must decide according to their several degrees of illumination. The results of the French practice may none the less be of great value to medical men among ourselves; and the work of Dr. VIBERT is well worthy of careful consideration and perusal. He deals at considerable length with what he describes as the neurasthenic and hystero-neurasthenic types of disease following concussion, and brings together a number of valuable reports of illustrative cases. It is noteworthy that he attaches but small importance to simulation as an element in these cases and that he regards undue readiness to suspect simulation as a characteristic of practitioners who are but moderately skilled in the investigation of nervous maladies. He also cites many cases illustrative of the amount of damage which may be inflicted by severe concussions upon organs and structures which have not been wounded in the common acceptation of the word, but which may nevertheless have undergone considerable interstitial injury, rupture of fine blood-vessels, destruction of cells, and so forth. A sudden shock communicated to the body projects the organs contained in its cavities against the walls of those cavities, and the resulting conflict between opposing forces may be productive of "lesions of commotion" which are often extremely grave. In post-mortem examinations of persons who have died comatose after injuries to the head it has often happened that only very slight injuries to the brain were discoverable by the naked eye and that general shock to the organ has appeared to be the cause of death. In some instances the individual, after an injury to the head, immediately loses consciousness and remains in that condition for a day or two, after which he may be the subject of a degree of mental confusion or even of delirium for some days more. Then the brain troubles disappear and in a short time recovery will be definite and complete. Others may sustain a similar and apparently less serious injury attended by less severe initial symptoms, but these may be followed by cerebral disorders producing permanent disability. In the presence of a recent injury to the head, the practitioner should never forget that the first symptoms afford no measure of the real gravity of the lesions, and furnish no grounds for a definite prognosis or diagnosis. In relation to the general subject of traumatic neuroses, Dr. VIBERT gives a number of valuable illustrative cases, in most of which there was a gradual but slow tendency towards recovery, and he discusses the diagnosis of such cases with great lucidity, dwelling especially upon permanent quickening of the pulse as a symptom indicating the reality of the affection. Headaches, disturbed rest with dreaming, occasional attacks of giddiness, diminished power of attention, and impairment of memory, are also described as usual symptoms, and all these will sometimes lead on to permanent disablement and obvious nervous degeneration. Dr. VIBERT'S histories are calculated to teach a lesson of caution to the practitioner and to emphasise the value of reticence as opposed to too confident prediction. They render it obvious that the actual amount and character of the injury done to the nervous centres by concussion cannot be estimated by any methods of examination which are available at or near the time when the shock itself was received.

The Paris Medical Journal.

THE movement for a better understanding and more intimate relations between France and England, known as the *entente cordiale*, continues to manifest itself in new forms. Of these not the least important is the closer intimacy which has sprung up between our French brethren and ourselves. The publication of a new periodical, the *Paris Medical Journal*, a monthly review of French medicine in English, is not an event which appeals only to medical men, only to journalists, or even only to Frenchmen and Englishmen. It is a sign that two of the leading literary and scientific forces of civilisation have recognised that science knows no national boundaries. The immediate design of the new journal is to make more widely known the work of the members of the great Paris school who are so well carrying on the torch handed to them by TROUSSEAU, PASTEUR, and CHARCOT, but at the same time it will not neglect the provincial schools. Each month will be reviewed the important communications to the Académie de Médecine and to the other societies and the articles of interest in the leading French journals and one of the French hospitals and watering-places will be described. In no capital in the world is the task undertaken so easy, for in none is there such centralisation. In Paris there is not, as with us, any confused overlapping of medical societies. There are one chief society and one chief journal for each special branch of medicine. Thus, the authoritative opinion of French surgery is to be found in the discussions of the Société de Chirurgie, while French therapeutics and medical pathology are well represented in the reports of the Société Médicale des Hôpitaux de Paris, which consists entirely of the hospital physicians. The *Paris Medical Journal* is edited by Dr. A. A. WARDEN, physician to the Hertford British Hospital, and Dr. E. L. GROS. The editorial committee

consists of Dr. DEBOVE, professor of clinical medicine, Beaujon Hospital; Dr. DÉJERINE, professor of nervous diseases, Salpêtrière Hospital; Dr. DIEULAFOY, professor of clinical medicine, Hôtel Dieu; Dr. PINARD, professor of obstetrics, Clinique Baudelocque; Dr. POZZI, professor of gynæcology, Broca Hospital; Dr. ROBIN, professor of therapeutics, Beaujon Hospital; Dr. TERRIER, professor of clinical surgery, La Pitié Hospital; Dr. BROCQ, dermatologist to the St. Louis Hospital; and Dr. COMBY, physician to the Hôpital des Enfants Malades. Such a staff is a guarantee of good work and the first number, which lies before us, is excellent both in form and matter. The qualities of lucidity, conciseness, and precision are almost imposed on a writer in French by the qualities of the language, which is adapted to the purposes of science more admirably than our own tongue with its greater range of choice and distinctly looser methods of expression. For English medical writers the virtues which we have called essentially French are an attainment and, unfortunately, a rare attainment; but, as might be expected, they are not wanting in this English journal produced in a French atmosphere. There is an important article by Professor A. CHANTEMESSE on "Five Years' Experience with Anti-typhoid Serum." He makes out a strong case in favour of this treatment. In 3595 cases of typhoid fever treated in 14 of the Paris hospitals there was a mortality of 17·3 per cent. In the hospital "Bastion 29" under the same treatment with the exception of the use of anti-typhoid serum there were only 27 deaths in 712 cases, a mortality of 3·7 per cent. The serum caused a rapid disappearance of the diarrhœa, headache, and other toxic symptoms. Under the head of "Paris Cliniques" are a series of brief but comprehensive clinical lectures of considerable interest. The subjects are "Bile-duct Lithiasis" (Dr. CHAUFFARD); "Choledochotomy" (M. QUÉNU); "Prognosis in Acute Sero-fibrinous Pleurisy" (Dr. BARTH); "Recurrence of Vesical Papillomata" (Dr. LEGUEU); "Stovaine *v.* Cocaine" (Professor RECLUS); "Chronic Tertiary Lesions and the Value of Mercury" (Professor DIEULAFOY); and "Cerebro-spinal Meningitis" (Dr. WIDAL). There are a biographical sketch and portrait of Professor DEBOVE, Dean of the Faculty of Medicine, the first of a series of the kind. We welcome the appearance of the *Paris Medical Journal* and trust that it will have a useful career.

Annotations.

"Ne quid nimis."

THE METHOD OF PHOTOGRAPHING THE DEAD FOR PURPOSES OF IDENTIFICATION.

AT two inquests held last week on the bodies of persons unknown the coroner commented at some length on the very unsatisfactory character of the photographs of the corpses prepared by the police authorities and suggested that means ought to be taken to make such photographs more like the individuals when alive and therefore more useful for purposes of identification. The question raised by these criticisms, though it is obviously of some practical importance, does not seem to have received much attention from medico-legal writers in this country and the bulk of the literature dealing with it is of foreign origin. One of the latest and most valuable contributions to its study is a paper by Dr. Minovici which appeared in the *Archives d'Anthropologie Criminelle* of Nov. 15th, 1904. The writer, who is director of the Medico-Legal Institute of Bucharest, gives in this paper a detailed account of the apparatus which he employs for posing the body and of the methods to which he has recourse for restoring the appearance of vitality to the features, his observations on this latter point being of special interest. One of the most serious difficulties in post-mortem photography is due, as is well known, to the loss of the brilliancy of the eyes, which has a large part in determining the characteristic expression of the individual. It has been usual to deal with this difficulty by the method suggested by Dr. Gosse[1] of applying compresses to the eyes, but Dr. Minovici has found that much better results may be obtained by the use of artificial eyes, dark or light, according to the colour of the individual's iris. A natural appearance can be given to the orbital opening by introducing beneath the lids an extemporised speculum of lead foil or by fixing the upper lid to the ball of the eye by means of a fine pin. The jaws can be drawn together with thread and by appropriate arrangements of pins various emotional expressions can be given to the face. Even in cases where putrefactive changes have occurred, if there has been no actual loss of substance, the features can be in a large measure restored if the gases in the areolar tissues are evacuated through suitable incisions in the scalp and in the buccal mucous membrane. By the application of these methods in a case where the body had been immersed in water for six weeks Dr. Minovici succeeded in getting a photograph sufficiently life-like to establish the individual's identity. Photographs showing the successive stages in the preparation of the body in this case are reproduced in the paper and give a striking illustration of the value of Dr. Minovici's ingenious artifices.

THE FRIENDLY SOCIETIES MEDICAL ALLIANCE: AN INTERESTING PAPER.

THE twenty-seventh annual conference of the above-mentioned organisation was held at Cambridge on April 16th. The Medical Alliance is a union of medical societies belonging to the friendly societies of the country and, as might be expected, most of the discussions at the congress had to do with the relation of medical aid associations towards their medical men. Some of the speakers showed that they were not very well acquainted with the duties of the General Medical Council and to the relation in which this body stands towards the medical profession. One speaker, for instance, referring to the difficulties which have lately arisen in Sheffield between the medical men and the Medical Aid Association of the Friendly Societies, is reported as saying that the "local body," which we suppose means the local practitioners, "in Sheffield appeared to be a branch of the General Medical Council." The most notable feature of the meeting from our point of view was a paper entitled "One of Our Difficulties," read by Bro. H. R. Webb of Banbury. Mr. Webb stated that the medical officer question was possibly the greatest difficulty that their association had to face and that members of the medical profession in many ways showed their want of sympathy with the friendly societies medical aid organisations. He then went on to inform his audience that in his opinion there were reasons for that which were more or less justifiable from the point of view of the profession and he thought that some of the causes of the trouble might be found to rest with medical associations and their management in the past. When medical aid associations were established the

[1] La Photographie après Décès, Geneva, 1896.

aim of the committees was to get a medical man as cheap as possible. The remuneration of the surgeon was often less than it might or ought to be. He was hampered by restrictions as to the methods of carrying on his work which were annoying and sometimes humiliating to a sensitive man. As for remedies, the operations of the medical aid associations should be confined as far as possible to members of friendly societies and their families. They should secure the services of a capable gentleman for a medical officer and having found that he was suitable he should be given the full confidence of the committee, his salary should be liberal, and nothing should be done to make him feel that he was a servant. They should not worry him with the details of petty and paltry complaints and they should by every means in their power endeavour to raise the status of their medical officers so as to make the position one that would be sought after by capable members of the profession. The meeting agreed that Mr. Webb's paper should be printed and circulated. No one, be he medical man or layman, who has read the papers which we have published under the heading of "Battle of the Clubs" can doubt that Mr. Webb's estimate of the way in which medical men have been occasionally treated is perfectly fair. If medical societies would act upon the lines which have been so well laid down by Mr. Webb the "Battle of the Clubs" might soon become as much a matter of history as that of Waterloo.

THE UNSEASONABLE APRIL.

RARELY has the month of April proved so treacherous and trying as the one which has just elapsed. This is more especially true of the southern half of England, where the changes of temperature were the most frequent and sudden, the diurnal range the greatest, and the penetrating property of the easterly and northerly winds the keenest. There has, perhaps, never been a month, even in the spring when a spell of Polar winds is one of the only certainties of the British climate, that the current of air over these islands has been so persistently from a cold, dry quarter. Until quite the end of the month there were only three days on which the wind in London and the south and south-east of England generally was not blowing from some point between north and east, while during the greater part of the time not a drop of rain moistened the parched soil of the country or flushed the drains and sewers of the towns. Regarded as a whole the temperature was not many degrees below the normal, the warmth of the earlier part of the period counterbalancing to a considerable extent the cold of the last fortnight. Happily, the month was unusually sunny throughout the whole kingdom and it is entirely due to this important fact that the temperature on many of the days when the easterly wind was keenest rose above the ordinary level for January. The sunshine was, indeed, the one redeeming feature of the month and did much to counteract the evil of the piercing winds. In Westminster and a few other localities the duration of sunshine was greater than that of any other April since the recording instruments have been in use—that is, since 1881. The nearest approach to the present record occurred during the droughty and very warm April of 1893. From the point of view of the meteorologist last month was one of unusual interest as a striking illustration of the persistency of a certain type of weather during a long period. The Polar winds were, of course, the direct result of high atmospheric pressure in the north and west and of low in the south and south-east. But why the anti-cyclone which generally lies in the neighbourhood of the Azores and frequently extends to the Spanish Peninsula and France should have moved bodily or sent out an arm so far north as Ireland and the west of Scotland to act as a barrier against the passage of the usual cyclonic disturbances from the Atlantic across Ireland to Scandinavia, is beyond the power of the most learned meteorologists of to-day to determine. Below will be found the mean temperature and the total duration of sunshine for the month, together with the difference from the average of several selected stations:—

—	Mean temperature.	Difference from average.	Sunshine (hours).	Difference from average.
Aberdeen	44·5°	+ 0·5°	232	+ 79
Scarborough	45·5°	+ 0·5°	228	?
Clacton-on-Sea	44·5°	− 4·3°	258	?
London	47·3°	− 1·0°	207	+ 93
Harrogate	43·3°	− 0·5°	193	?
Birmingham	45·3°	0·0°	167	?
Bath	46·1°	− 1·0°	223	?
Brighton	45·7°	− 1·8°	236	+ 63
Plymouth	47·3°	− 0·9°	245	+ 75
Llandudno	46·0°	− 0·5°	230	+ 77
Blackpool	44·0°	− 1·6°	224	+ 75

THE INTER-RELATION OF EDUCATION AND INFANT MORTALITY.

IT is interesting, and should be equally instructive, to glance occasionally at the reasons given—in many cases in humble, apologetic tones—for the high rate of infantile mortality that disgraces so many of our towns. A discussion took place recently at a meeting of the town council of Ashton-under-Lyne illustrative of various views. The infantile death-rate in a part of one of the wards was very high. The mayor said that a seventh of the deaths were of illegitimate children, only one of whom lived to be seven months old. There can be no question that these waifs are very bad lives. No one wants them. They are in the way; they meet with no welcome from the mother's relatives and the mother herself, if still retaining some traces of modesty, is ashamed of her offspring, and so natural affection, like the baby itself, stands a poor chance of long survival. The mayor contended that this state of things was due not to insanitary property but to social and industrial evils that should be checked. He thought that after the way boys and girls loafed about the streets such a report should cause no surprise. One gentleman attached more importance to many of the houses being absolutely "unfit for human habitation"; he thought that many of those present would not stable their animals in such places. Another expressed the opinion that the ignorance of the mothers as to feeding the infants was the greatest evil. Of course, all were right in attaching importance to what they considered chief factors in the case, but all wrong in taking too limited a survey of the difficulties under which the children of the poor in manufacturing towns begin the first twelvemonth's struggle for existence. The dwellings are unhealthy, damp, and ill ventilated in too many cases, occupied by dirty, ignorant people, at the best careless of the lives entrusted to them, and often glad enough to see those lives surely wasting away. Even without attributing sinister motives the appalling and disgraceful ignorance, left after more than 30 years' compulsory education, of everything as to the feeding and bringing up of an infant is sufficient to insure a high death-rate. The responsibility of this must fall in great part on the school authorities, being another proof of the necessity that the schoolmaster, the medical man, and the sanitarian are jointly concerned in the development of all sound educational schemes. In his recent report on the health of the borough of Bacup Dr. J. Brown says that the infant mortality is satisfactory "for a manufacturing town, but it ought to be further reduced." This seems a little contradictory, but no doubt means that however good the position may be efforts should

be made to improve it. He does not think that sterilised milk depôts will do much to diminish the mortality and may do much harm, "as it practically justifies the unnatural feeding of infants and helps to destroy the mother's sense of the wrong done to the infant." He says that the public conscience should be aroused as to "the crime of robbing an infant of its natural food, except under the direst necessity." Unfortunately, the poor mothers have too often a bad example set them by well-to-do mothers whose social or other engagements are considered as more pressing than the duty of suckling their offspring. A more wholesome and more motherly public opinion is wanted among women and Dr. Brown advocates the establishment in our textile manufacturing towns of maternity benevolent societies "to educate and train young mothers in the duties and responsibilities of motherhood." As he says: "The healthy breast-fed infant slept much and grew fat. The bottle-fed slept little, cried much, grew thin, and the majority died." The diet of the mothers might no doubt be more nutritious without increase of cost and the teapot might with advantage be ousted from its place on the hob. Without accurate statistics the injury, suffering, and death from fire cannot be computed but the danger from this source is a serious addition to the risks a young child has to run. It is not surprising that there are so many puny children in the streets of our towns, the wonder being that so many live to be old enough to play in the gutter.

SMALL-POX IN THE "THREE TOWNS."

WE have received communications concerning the occurrence of small-pox in the "Three Towns" (Plymouth, Devonport, and Stonehouse) which induce us to publish some details of the epidemic. The number of cases notified from the commencement of the outbreak in July, 1905, up to date is 214, of which a considerable proportion had been vaccinated but none had been revaccinated. In the early part of the outbreak a few cases were reported as chicken-pox which proved to be small-pox, and it is noticeable that in the Registrar-General's Report for 1904 special mention is made of the fact that this error must occasionally occur. At the suggestion of Mr. F. M. Williams, the medical officer of health of the borough and port, chicken-pox was made a notifiable disease, with the result that all the cases, for one reason or another, came before the medical officer of health. The only ones that can have escaped his notice were such modified cases as received no medical attention, and we may be pretty certain that the number has been accurately arrived at. The antivaccination spirit amongst a certain section of the public is well marked and the suggestion has been freely made, with a view to minimising the epidemic, that medical men have been notifying chicken-pox as small-pox, that being exactly the reverse of the case. The outbreak has been widely diffused, affecting the "Three Towns" in their various districts, but it has been uniformly mild in type, and with all the medical men ready and willing to assist the medical officer of health the epidemic is under complete control.

VIEW DAY AT ST. BARTHOLOMEW'S HOSPITAL.

THE traditional ceremonies of "View Day" at St. Bartholomew's Hospital will be observed this year on May 9th. A special effort is being made on this occasion to interest friends of the hospital in the work of rebuilding. The out-patient and special department block now in course of erection will be open to inspection during the afternoon and at 5 P.M. a meeting will be held in the library in aid of the funds for the projected new pathological block. In the evening at 8.30 an entertainment will be produced in the Great Hall in aid of the funds of the pathological block. It will consist of an exact reproduction of the ancient dances of the sixteenth and seventeenth centuries, with the original costumes and music of the period, and will be presented by Miss Nellie Chaplin. The entertainment has been given at various places in England but not often in London and is an artistic treat of very high order in the opinion of those who have witnessed it. Applications for tickets, price £1 1*s.*, 10*s.* 6*d.*, and 5*s.*, should be made to the honorary secretaries, Entertainment Committee, School Offices, St. Bartholomew's Hospital, London, E.C.

PNEUMOCOCCIC ARTHRITIS IN CHILDREN.

A COMPREHENSIVE study by Dr. Hans Herzog of Heidelberg of this interesting condition with references to all the recorded cases appears in the *Jahrbuch für Kinderheilkunde und Physische Erziehung*, April 2nd, 1906. The occurrence of a purulent arthritis associated with the presence of the diplococcus of Fränkel-Weichselbaum has been recognised for some time past in this country and several papers recording cases have been published in our columns, notably one containing records of five such cases by Mr. L. S. Dudgeon and Dr. W. P. S. Branson[1] to which Dr. Herzog makes frequent commendatory references. In the present paper he records three cases which have been under his own observation and he has collected from the literature 25 others, all under the age of two years. After a careful study of these cases he finds that the condition is usually confined to one large joint, although in a few cases several joints have been affected. In the monarthritic group the knee-joint was involved in ten cases, the shoulder in seven, the elbow in four, and the ankle in two. In the cases where more than one joint was affected the distribution was as follows: in one case, both shoulders and the left knee; in another, both wrists and the left hip; in a third case, the left ankle and right knee; and in a fourth, the right elbow and right knee. In discussing the channel of infection Dr. Herzog points out that in 11 out of the 28 cases no evidence of antecedent pulmonary affection was forthcoming, while in eight cases of similar character in children between the ages of two and 14 years there were five cases without any antecedent pulmonary focus of the disease. On the other hand, in 55 cases of pneumococcal arthritis in adults only four occurred without pulmonary lesions. From these figures he concludes that other channels than the lung very often serve as the primary focus of the pneumococcal infection in infants and young children. The most probable primary focus is, according to Dr. Herzog, to be found in suppuration of the middle ear due to the pneumococcus. In support of this contention he quotes some observations recorded by Netter,[2] who found otitis media in 29 out of 31 necropsies on infants under the age of 30 months suffering from pneumococcal infections, with broncho-pneumonia in 12, and lobar pneumonia in one. The anatomical appearances of the affected joints are described as being in general similar to those of other suppurative varieties of arthritis, but the destructive changes are usually relatively slight and evidence of any affection of the bony structures of the joint may be difficult to discover at the time of operation although in fatal cases it can usually be made out. The capsule of the joints was distinctly thickened in the three cases observed by Dr. Herzog. A small piece of the capsule of the hip-joint in one case was examined microscopically and the capsule as a whole was found to be swollen and thickened, while the synovial membrane of the joint was infiltrated with both mononuclear and polymorphonuclear cells. A section stained by Gram's method showed a few diplococci more or less uniformly distributed through the tissues of the joint. In one case there was distinct evidence of a pneumococcic septicæmia, for the organisms

[1] THE LANCET, 1903, August 1st, p. 316.
[2] Comptes Rendus de la Société de Biologie, 1890.

were found in the spleen, the lungs, and in the bone marrow, but not in the liver and kidneys. The cultural and staining reactions of the diplococcus were carefully studied and it was identified as the Fränkel-Weichselbaum pneumococcus, this conclusion being confirmed by inoculation experiments. The explanation offered of the frequency of such joint infections in infants is the peculiar structure and vascular arrangements of the bony rudiments of the joints, for, as shown by Neumann, the capillaries of the bone marrow in infants are of larger calibre than the smallest arteries, whereby the blood current is rendered extremely slow and the deposition of infective organisms in the tissues is favoured. The clinical features of the condition are described as being somewhat characteristic. The skin, especially of the face, is usually pale in spite of the fever, which is usually irregular, the temperature fluctuating between 37° and 40° C. There may be little or no disturbance of the appetite or digestion and the child may sleep well. This condition, as previously noted by Mr. Dudgeon and Dr. Branson, is somewhat suggestive and Dr. Herzog agrees with their description. The local condition is that of marked swelling and œdema around one of the larger joints, often involving almost the whole limb. There are tenderness on pressure and often increased heat but there is as a rule no circumscribed redness and this is an important distinguishing feature between pneumococcic and other forms of arthritis. In rare cases there may be an abnormal mobility of the joint. The pus when obtained by puncture of the joint is found to be non-offensive, of creamy consistence, greenish-yellow in colour, and frequently deposits threads of fibrin. The diagnosis of the condition is as a rule not difficult and can readily be confirmed by bacteriological examination of the pus. It has to be distinguished from gonorrhœal, syphilitic, and tuberculous arthritis and from joint affections due to the staphylococcus and streptococcus. In the two latter conditions the general symptoms are much more severe and the local conditions are associated with more inflammatory redness of the skin. The prognosis of the condition is serious but under appropriate treatment complete recovery is possible. Among the 28 cases in the literature 14 recovered, 11 died, while in three no statement is given of the ultimate results. The treatment is obviously surgical. Salicylates are useless. The evacuation of the pus by aspiration is but rarely successful and should not be relied on as valuable time may be lost. The best plan is a thorough opening of the joint, evacuation of the pus, and the removal of the fibrinous threads, which have been described as "veritable nests of diplococci." The wound should be drained for two or three days.

THE PREVENTION OF INFANT MORTALITY.

How best to educate mothers who by their lack of knowledge in the rearing of children help considerably to swell the infant mortality-rate is a question which is exercising the minds of all who appreciate the importance of the matter to the nation. The mayor of Huddersfield has for some time directed his attention to the subject and his efforts to educate nursing mothers in the care of their children have been already attended with not a little success. He has now in conjunction with the medical officer of health of Huddersfield issued in pamphlet form an open letter addressed to the mothers of that town in which, after referring to the successful work of the mayor of Villiers-le-Duc in France in connexion with the hygienic nursing of infants, he gives some useful recommendations for the proper care of young children. Many of these recommendations if put into practice will not only conduce to the health of the infant but also to the comfort and ease of the nursing mother herself by relieving her of much unnecessary work and anxiety. The remarks with regard to bedding are particularly worthy of consideration. It is suggested that the best cot is a basket covered with a large napkin on which is placed a thick bed of bran. The sheet should be simply placed upon the bran, the portions soiled by urine being continually removed. The suggestions with regard to food might be read with profit by most mothers and we quite agree with the recommendations with reference to fresh air. The letter concludes with an excellent practical piece of advice—

> Mothers waste a lot of time in wheeling a perambulator about, unless it is done as exercise for the mothers. The baby will get just as much good if it is put out of doors on the "door stones," or in a bit of garden, where there is fresh air and sunshine, just taking care to avoid direct exposure to sun and wind; it is not even necessary to have a perambulator, put the baby out of doors in a clothes basket nicely covered and sheltered and let it have full measure of fresh air. Only do not put the basket near a sink or a drain trap.

The letter is headed by the appropriate quotation—

> "Blest the babe
> Nursed in his mother's arms, who sinks to sleep
> Rocked on his mother's breast; who with his sou
> Drinks in the feelings of his mother's eye!"—

And we may add blest, too, will be the mother who rears her offspring on the lines recommended in the pamphlet under notice.

THE INFLUENCE OF X RAYS IN MYELOGENOUS LEUKÆMIA.

THE influence of x rays on the nitrogenous metabolism and on the blood in cases of myelogenous leukæmia is dealt with by Dr. Owen T. Williams in the April number of the *Bio-Chemical Journal*. In order to determine the average nitrogenous excretion of a patient under treatment for this disease he was put on a diet containing 25 grammes of nitrogen per diem. The total nitrogen in the fæces and urine was determined by Kjeldhal's method and the uric acid by the Folin-Hopkin method. Blood films were examined each day and a leucocyte count was made on alternate days. In the case cited the average intake of nitrogen over a period of five days was 25·67 grammes and the average excretion of nitrogen in the urine was 11·39 gramme, the nitrogen in the fæces not being determined. The average excretion of uric acid was 0·4738 gramme per diem, a figure within the normal limits. In two other cases in the Royal Infirmary, Liverpool, a normal excretion of uric acid was recorded, contrary to the statement found in text-books that the excretion of uric acid in this disease is always increased. The patient was then treated with the x rays twice at intervals during a further period of six days, with the result that a loss in weight of one and a quarter pounds was observed, whereas prior to treatment with the x rays the weight remained constant. Each exposure lasted ten minutes, the first being given at 10 A.M. on the second day of the second series of observations. On the fourth day the patient vomited his breakfast immediately after taking it, so the treatment with the x rays was discontinued. The day before the first exposure the nitrogenous intake exceeded the output by 6·4 grammes; on the first day of exposure to the x rays this excess was reduced to 1·3 grammes and the day following to 0·45 gramme. On the fourth day the output of nitrogen in the urine and fæces exceeded the intake by 1·64 grammes and on the fifth day by 1·84 grammes. On the sixth day the nitrogenous intake again exceeded the output by 1·19 grammes, thus showing a gradual return towards the former condition before treatment with x rays. The amount of uric acid excreted in the urine gradually rose from 0·51 gramme on the first day to 0·9513 gramme on the sixth day. The number of leucocytes per cubic millimetre rose from 130,000 on the second day of the first series of observations to 250,000 on the fifth day of the second series, but fell again on the sixth day to 135,000.[1] This marked increase in the number of leucocytes,

[1] Compare THE LANCET, Jan. 27th, 1906, p. 211.

occurring as it did with an increase of nitrogenous excretion and of uric acid, led Dr. Williams to conclude that the synchronous constitutional disturbance had some relation to these changes. A rise in temperature was also observed during the x ray treatment, the highest temperature recorded being 100·6° F. Dr. Williams concludes that the exposure to x rays of patients suffering from myelogenous leukæmia produces a disintegration of proteid material in the leucocytes, the products formed giving rise, in some cases at least, to grave constitutional disturbance. He suggests that when x ray therapy is being used in this disease the patient should be allowed sufficient time between each exposure to excrete the toxic products which are formed. The daily estimation of the uric acid excreted affords an indication of the length of such intervals and gives the physician a guide as to the safe dose of x rays to be used.

BASIS WINES.

WE note that the Chancellor of the Exchequer proposes to bring the growing industry of the manufacture of what are called basis "wines," which are manufactured in the United Kingdom and come more or less into competition with duty paid foreign wines, under Excise supervision. The importation of grape juice for the purpose of manufacturing wine in this country avoids, as we have frequently pointed out, the spirit duties, and it is surprising that the revenue authorities have not hitherto taken action summarily in this matter, since by this device they are deprived of so much duty on wine made necessarily from material imported from abroad. Moreover, the imposition of a duty on basis wines should have an excellent moral effect, since there can be little doubt that true claret has had its character considerably damaged by the unfair competition of basis wines sold under such fraudulent titles as Bordeaux, Médoc, St. Julien, and other well-known districts in France. We trust that this fraudulent dealing will be stopped by compelling the manufacturers to use a label on the bottle honestly describing the contents. We have nothing to say against basis wines in general, and, as a matter of fact, there is no reason why a wine carefully produced from genuine grape juice in this country should not be just as wholesome as a wine produced from the same juice abroad. All we ask for is an honest description of the product.

APPENDICITIS AND PERFORATED DUODENAL ULCER.

THE coincident occurrence of two important morbid processes in a patient will always raise the question whether there be any causal nexus between them. The practical rule for diagnosis is that if any single explanation will account for all the phenomena present it is to be preferred to a suggestion of a mere coincidence. In the present issue of THE LANCET is published an account by Mr. E. G. D. Milsom of a case which was under the care of Dr. John Gutch of Ipswich. The patient was certainly suffering from an attack of appendicitis and he died from the perforation of a duodenal ulcer and the question arises, Are these two independent lesions or are they causally connected? In this case there had been hæmatemesis and this has been described by several writers as occurring as a complication of appendicitis. No case appears to have been recorded of the association of inflammation of the appendix with duodenal ulcer and that fact in itself is opposed to the idea that the two conditions are connected as cause and effect or have a common cause. On the one hand each of the conditions has a certain frequency of occurrence, and neither is very rare; therefore the chance of their occurring together sooner or later in one patient is by no means small. On the other hand, we know that appendicitis is beyond doubt the effect of a septic infection of the appendix, and also that an ulcer of the duodenum is very probably always septic in origin, though digestive action of the gastric juice may have a secondary action in actually giving rise to the ulcer. Thus there is little strange in believing that a septic infection of the alimentary canal can have given rise on the one hand to the ulceration of the duodenum and on the other to the inflammation of the appendix. It is possible that a bacterial examination of the peritoneal fluid and of the appendix might show a similarity in the form of the infection. On the whole we should be inclined to think that the two conditions were associated causally.

NITRATE OF BARIUM GIVEN IN MISTAKE FOR ARTIFICIAL CARLSBAD SALTS.

THE poisonous effects of barium salts were illustrated in a tragic manner recently in a district in Germany. By an extraordinary mistake a firm in Leipsic supplied certain of their customers with barium nitrate instead of artificial Carlsbad salts and several fatalities occurred. It is a remarkable fact that this is not the first instance in which poisonous barium salts have been accidentally supplied for artificial Carlsbad salts, so the presumption is that the crystals are identical in shape and appearance. The Carlsbad town council, which is naturally anxious to uphold the reputation of Carlsbad, declared that the indiscriminate use of the term "Carlsbad salt" to describe artificial saline mixtures is a fraud. The real Carlsbad salt is a compound obtained from the evaporation of the water of the Carlsbad springs and is exported under the control of the Carlsbad authorities, so that such accidents are said to be impossible when the real Carlsbad salt is prescribed.

RECORDS IN PARACENTESIS ABDOMINIS.

IN THE LANCET of April 21st (p. 1108), we printed an account by Mr. F. H. Maberly of a patient under his care, who suffered from marked ascites and who was tapped altogether 69 times and at each tapping about two gallons of serous fluid were removed, or about 140 gallons in all. The case is remarkable both for the number of times the patient was tapped and for the total quantity of fluid removed, but a search through medical literature will show several which surpass Mr. Maberly's case, both in the number of tappings and in the total quantity removed. Dr. D. Dickinson, of the United States Navy, reported a case of a man, 28 years old, who was tapped 69 times within 17 months. Dr. Farrar recorded a case in 1885 where he tapped the abdomen 78 times for ascites. Dr. Haymaker and Dr. Graham in 1872 described a case under their care in which the abdomen was tapped 130 times within 18 years and an instance was reported in the *Bulletin des Sciences Médicale*, in which there were 154 tappings. Paolo related a case in which the patient was tapped 255 times within ten years. A case was reported in Paris in which the abdomen was tapped 300 times, but the climax is reached in the case of a woman reported by Cann to the Paris Academy of Medicine on whom paracentesis abdominis was performed no less than 886 times within 15 years, or about once a week for the whole time. When we come to consider the total quantity of fluid removed in such cases as these the amounts seem enormous. In Mr. Maberly's case the total amount appears to have been about 140 gallons, or 1400 pounds, if we take the specific gravity of the fluid as equal to that of water, but it is really a little greater. Now 1400 pounds are some 200 pounds more than half a ton. In Dr. Dickinson's case, mentioned above, the total quantity was rather less. In Dr. Farrar's case 234 gallons were drawn off and this exceeds a ton by 100 pounds. Dr. W. E. Hyde in 65 tappings removed over one and a half tons of serum, or 371 gallons, and in the case already mentioned where

tapping was employed 154 times, 385 gallons were evacuated, a quantity amounting to more than a ton and three-quarters. Lastly, in two other cases which we have mentioned three tons of serum were removed; one of these was that described by Dr. Haymaker and Dr. Graham, and the other was Paolo's case, this quantity weighing probably more than 50 times the weight of the patient. It is not improbable that some of these cases diagnosed as ascites were instances of ovarian cysts, for in several of the patients the general health seems to have suffered but little. Whatever may have been the cause of the collection of serum the very large quantities removed must have been a great drain on the health of the patient, for the loss of so much albuminous fluid must have proved very depressing. We would hardly venture to assert that the figures we have quoted have never been exceeded but 886 tappings and the removal of three tons of serum cannot often have been equalled.

INFANT MORTALITY AND BIRTH NOTIFICATION.

IT appears that the Huddersfield corporation has been successful in obtaining the sanction of a Select Committee of the House of Commons to the insertion of clauses in a local "omnibus" Bill requiring, under penalty, the future notification of each birth occurring in the borough to the medical officer of health within 48 hours of its occurrence. The objections to imposing such obligation and liability to penalty upon fathers and others in a single borough by means of clauses in a private Bill are obvious, but the result of this experiment, if the Bill becomes an Act, will possess far more than local interest. It is provided in this Bill that it shall be the duty of the father of each child born in the borough after the commencement of the proposed Act, if actually residing in the house in which the birth occurs, or in his absence of any person in attendance upon the mother at the time of the birth, or within six hours thereafter, to send or to give notice of the birth to the medical officer within 48 hours after such birth. Any person so required to give such notice failing without reasonable excuse to give or to send the same is to become liable, on summary conviction, to a fine not exceeding 20*s*., including costs, for each offence. The corporation undertakes to pay to the person who thus notifies a birth a fee of 1*s*., and it is further provided that the obligation to furnish this notification shall be in addition to, and not in substitution for, the existing requirements of the public and general Acts relating to the registration of birth and deaths. It is further to be enacted, in recognition that this proposed legislation is only experimental, that the clauses requiring this compulsory birth notification shall cease to be in force at the expiration of five years from the date of the passing of the Act, unless the provisions shall have been continued by public Act. While it is doubtful whether the public would be favourably disposed to the general application of these provisions proposed to be enacted in Huddersfield, or whether they will answer expectations in that borough, it would not be without interest to inquire how far the past voluntary local action of the mayor and corporation, with a view to the reduction of infant mortality, has yielded encouraging results. It appears from the official returns of the Registrar-General that the deaths of infants under one year of age during last year in Huddersfield were equal to 120 per 1000 of the births registered, showing a decline of 16 per 1000 from the proportion that prevailed in the previous year, 1904, while the mean rate of infant mortality in the 76 largest English towns in 1905 and 1904 was 140 and 160 per 1000 respectively. The annual rate of infant mortality, especially in towns, is mainly governed by the summer temperature and rainfall, which in 1905 were far more favourable than in the previous year. It may, however, be noted that the decline in the rate of infant mortality last year in Huddersfield, compared with that in 1904, was equal to 11·8 per cent., whereas the decline in the aggregate of the 76 large towns was 12·5 per cent. It is disappointing to find that the energetic and exceptional efforts made by the mayor and corporation of Huddersfield[1] in 1905 do not appear to have resulted in the reduction of infant mortality that might reasonably have been expected. With every wish for the success of the proposed experimental legislation to secure prompt birth notification in Huddersfield, it may be presumed that the probability of the enactment of similar provisions operating generally throughout England and Wales must practically depend upon clear proof of their beneficial effect in Huddersfield.

THE INCORPORATED SOCIETY OF MEDICAL OFFICERS OF HEALTH.

Sir Shirley Murphy, President of the above society, will give his presidential address at the society's rooms, 1, Upper Montague-street, Russell-square, London, W.C., on Friday, May 11th, at 5 P.M. The jubilee dinner will be held at the Hotel Cecil, under the presidency of Sir Shirley Murphy at 7.30 P.M. the same evening. Many leading sanitarians and others have accepted invitations to be present—e.g., Sir R. Douglas Powell, Bart., K.C.V.O., President of the Royal College of Physicians of London; Sir Thomas Barlow, Bart., K.C.V.O.; Sir Patrick Manson, K.C.M.G.; Sir Seymour King, K.C.I.E.; Sir Lauder Brunton; Sir Walter Foster, M.P.; Sir Francis S. Powell; Sir William H. Broadbent, Bart., K.C.V.O.; Sir Melvill Beachcroft, chairman of the Metropolitan Water Board; Sir James Crichton-Browne; Sir Michael Foster, K.C.B.; the Director-General of the Army Medical Service; Surgeon-General A. M. Branfoot, C.I.E., President of the Medical Board, India Office; Mr. J. Tweedy, President of the Royal College of Surgeons of England; the Chairman of the London County Council; Dr. Klein; and Dr. J. F. W. Tatham. It is expected that the dinner will be largely attended and members of the society are asked to apply as early as possible for tickets so that the necessary arrangements may be made. Tickets (10*s*. 6*d*. each, without wine) are to be obtained on application to Dr. Joseph Priestley, 333, Kennington-road, London, S.E., and members of the society can obtain extra tickets for any guest (or guests) whom they may desire to bring with them.

THE "INDEX MEDICUS (SECOND SERIES)."

THE "Index Medicus" was established in 1879, under the editorship of Dr. John S. Billings and Dr. Robert Fletcher and was discontinued in 1899. We wish to draw the attention of our readers to the details of the new issue of this most valuable work of reference. The present series is published by the Carnegie Institution of Washington, U.S.A., and is known as "Index Medicus, Second Series," vol. i. having been commenced in January, 1903. It is issued as early as possible after the completion of the month represented, time being allowed for the arrival of foreign journals. The editors are Dr. Robert Fletcher, and Dr. Fielding H. Garrison, This publication consists of the titles in full of books, pamphlets, theses, contributions to coöperative works and original articles in journals, transactions of medical and scientific societies, and the like, arranged under subject-headings. The titles in certain languages, as Russian, Polish, Swedish, Danish, Finnish, Hungarian, Bohemian, Roumanian, and Japanese, are translated into English. A table of contents accompanies each number and on the completion of the volume an "Annual Index of Authors and Subjects" is issued. The subject part of this annual index is elaborately subdivided, the classification closely resembling that of the

[1] THE LANCET, Dec. 9th, 1905, p. 1732.

Index Catalogue of the library of the Surgeon-General's Office, United States Army. The index of the volume for 1903 occupies 187 pages in double and triple columns. The subscription price (to be paid in advance) is $5 per annum in the United States and Canada; in foreign countries, 25*s.* or marks, 30 francs or lire. Communications relating to subscriptions should be addressed: Carnegie Institution, Washington, District of Columbia, U.S.A. Communications in relation to the bibliography should be sent to: Editors Index Medicus, Washington, District of Columbia, U.S.A.

THE STATUS OF THE HAMPSTEAD GENERAL HOSPITAL.

IN our issue of April 14th we mentioned that at a meeting of the Hampstead division of the British Medical Association it was decided to call a conference of the whole of the medical practitioners in the neighbourhood upon the management of the Hampstead General Hospital. It has been decided that this conference shall be held on Saturday, May 5th, at 4.30 P.M., in the concert hall of the Hampstead Conservatoire. The agenda of the conference are to consider the resolutions passed at the meeting of the local division of the British Medical Association referred to above and to consider the circular letter and question which have recently been issued by the council of the hospital to the medical profession in Hampstead. As we have said upon a previous occasion, the matter is entirely one for the local profession to decide and we see no reason why a satisfactory solution of the problem should not be arrived at, as both the authorities of the hospital and the members of the medical profession in Hampstead itself and the surrounding district seem anxious for a settlement of the question.

As was mentioned in THE LANCET of April 28th, Baron Takaki, F.R.C.S., will deliver a series of lectures at St. Thomas's Hospital, on May 7th, 9th, and 11th, upon the Preservation of Health among the *Personnel* of the Japanese Army and Navy. The lectures will be founded on the experiences of the late Russo-Japanese war, but Baron Takaki wishes to state that it is incorrect to describe these experiences as personal. Our distinguished *confrère* retired from active service in the Japanese navy more than a dozen years ago but he visited Manchuria during the war as a spectator.

THE annual meeting of the Invalid Children's Aid Association will be held on May 30th, at 3 P.M., at 17, Bruton-street, London, W., by kind permission of Lord and Lady Stratheden and Campbell. Sir Frederick Treves will preside and the Bishop of London and Mrs. Craigie (John Oliver Hobbes) will be among the speakers. Admission by application to the Secretary at 69, Denison House, Vauxhall-bridge-road, London, S.W.

H.R.H. the Princess Royal will lay the foundation-stone of the new buildings of the Bolingbroke Hospital, Wandsworth Common, London, S.W., to-day (Saturday, May 5th). Admission will be granted to those holding tickets for reserved seats by the "West Entrance," Wakehurst-road, but cannot be obtained before 2 P.M. or after 3 P.M. The secretary to the building committee is Mr. J. C. Buchanan.

THE ninth annual meeting of the Childhood Society will be held at 7, St. James's-square, London, S.W., on Tuesday, May 8th, at 3 P.M., when an address will be delivered by Sir Edward Brabrook, C.B., F.S.A.

THE half-yearly dinner of the Glasgow University Club, London, will be given in the Trocadéro Restaurant, Piccadilly-circus, W., on Friday, May 25th, at 7.15 for 7.30 P.M., when Sir Thomas McCall Anderson, Regius professor of medicine in the University of Glasgow, will occupy the chair. Applications for dinner tickets should be made to the honorary secretaries, 63, Harley-street, London, W.

THE whole of the medical profession will share our deep sympathy with Professor Augustus D. Waller, F.R.S., director of the Physiological Laboratory in the University of London, who has lost his daughter, a child of 12, in the recent shipping disaster off Sark. Professor Waller's son, who was also on board, was saved but the companion of the two children, Miss Smith, was drowned.

THE summer session of lectures on diseases of children at Great Ormond-street Hospital for Sick Children will be opened by Mr. W. Arbuthnot Lane, who will lecture on Cleft Palate on Thursday, May 10th, at 4 P.M. The lectures are given every Thursday at 4 P.M.

WE heartily congratulate Dr. Alfred Ernest Jones upon his complete exoneration from the infamous, and perfectly incredible, charges brought against him in connexion with his official visits at the schools for defective children.

SIXTY-SEVENTH ANNUAL REPORT (FOR 1904) OF THE REGISTRAR-GENERAL.

I.

IN THE LANCET of April 21st, p. 1120, we reviewed in a general manner in a leading article the first part of the Registrar-General's report on the births, marriages, and deaths recorded in 1904. We now proceed to notice in detail that section of the report which treats of the causes and geographical distribution of mortality. Sir William Dunbar still continues his useful comparison of English vital statistics with those of our British Colonies and dependencies as well as with those of foreign countries, thus considerably augmenting the scope and importance of his work. The particulars of this comparison will be found *in extenso* at page 30 of the report; we may have occasion later to refer to the wide lessons to be drawn from these figures but for the present we will deal with the mortality statistics during 1904 of England and Wales.

English mortality from all causes in 1904 was at the rate of 16·2 per 1000 of the population and was therefore higher by nearly 1 per 1000 than the rate of the preceding year, which had been the lowest on record. Nevertheless the rate for 1904 still compares favourably with the quinquennial average and the excess over the rate of the previous year may readily be accounted for by variations in the weather conditions of the two periods. Although of the 500,000 deaths recorded in 1904 less than 2 per cent. were registered as uncertified either by medical men or by coroners, we learn that more than 9 per cent. of the total were referred to causes so indefinite as to be worthless for purposes of classification. We further learn with regret that in the 6½ per cent. of the deaths which are made the subject of inquests the certificate of the coroner in many cases leaves it uncertain whether or not medical evidence of cause of death had been given in his court. The death-rate here quoted as 16·2 per 1000 is, of course, the average rate for England and Wales, without distinction of sex, age, or locality. Taking one year with another the mortality of males is higher than that of females by about 14 per cent. and it is notorious that the rate varies enormously at the several stages of life. Again, the fatality of most diseases is known to vary considerably according as a given area contains a large or a small proportion of urban inhabitants. For this reason, in each annual report issued since 1900 statistics have been given showing the mortality in two groups of English counties, the one being urban in character and containing a total population of 18,000,000, the other rural with a population of 4,333,000; the rates in these areas are then made comparable by correction for age and sex differences of the

populations. From a table in the present report we gather that whilst among males at all ages the death-rate in the urban group exceeded that of the rural by about 5 per 1000, among females the urban excess was less than 4 per 1000. If the English counties be taken separately far greater differences of mortality will be observed. Thus among persons of both sexes in Westmorland and Oxfordshire the rate was only 11½ per 1000 of the population, whilst in Lancashire it was 20½, a difference of no less than 9 per 1000.

A most valuable portion of the report is that which forms the subject of Dr. Tatham's letter to the Registrar-General and which, inasmuch as it discusses the various causes responsible for English mortality, possesses more than ordinary interest for students and practitioners of medicine. Dr. Tatham prefaces his analysis of the causes of death by referring to the subject of disease registration, the necessity for which as a national institution has been insisted on by the Interdepartmental Committee on Physical Deterioration and the practicability of which has been affirmed by the medical officer of health of the county of London in his report for 1904. It is deplorable that the United Kingdom, which alone among the nations possesses a complete organisation for the medical treatment of the poor, and every important town of which is replete with hospital provision for the sick, should allow the accumulated records of sickness to run to waste solely because of the apathy of the authorities who are intrusted with the preservation of the public health. We hope that the suggestion now once more put forth will be adopted, and that at any rate the beginning of a system of sickness registration will be set on foot by the authorities of the London hospitals who might furnish for publication to a central bureau periodical returns of the sick cases coming under their care. We are convinced that such returns would be of great value and if an example were set by the great metropolitan institutions it would eventually be followed in all the important towns in the country. The systems of sickness registration and death registration are complementary the one to the other, and it is plain that neither of them by itself can be regarded as satisfactorily fulfilling the requirements of vital statistics. That much may be done in the direction of a national registration of sickness has already been proved by the Local Government Board—not in respect of diseases generally but in respect of those infectious diseases the notification of which to sanitary authorities is compulsory under statutory provision. Although their returns are at present marked confidential, and therefore are not available for general use, it may be mentioned that the Local Government Board now issues periodical records of the cases of infectious disease notified throughout England and Wales, so far as these can be ascertained in time for inclusion in the Board's weekly bulletin. The cost of the medical treatment of the sick whether by Poor-law institutions or by public hospitals is eventually borne by the ratepayers, and it is to be regretted that the valuable information which present circumstances might readily afford is not as yet available either for curative or for preventive purposes.

Respecting the fatality of the common infectious maladies the full particulars for 1904 provide suggestive information. Small-pox has been present during the year in less than the usual severity, but in parts of the North of England it has threatened at times to assume epidemic proportions, the mortality ranging from a rate of 16 per 1,000,000 in Lancashire to 66 per 1,000,000 in Northumberland. No estimate is offered as to the number of cases of small-pox that have occurred—we presume because of the incompleteness of the returns under the Notification Act—but it appears that in the year under notice 507 deaths were definitely referred to small-pox and, what is of no less importance, that 104 other deaths were indefinitely referred to chicken-pox, most of the latter being probably unrecognised cases of the graver disease.

The mortality from diphtheria in England and Wales has steadily fallen, the present rate being little more than half of what it was five years ago. In addition to the deaths definitely returned as from diphtheria the registers contain entries of a considerable number of deaths indefinitely referred to "croup," neither "spasmodic" nor "membranous." In order, however, to obtain an approximate statement of the mortality caused by diphtheria the deaths from that disease and those from so-called "croup" are classed together. The fall in London mortality from diphtheria is especially noteworthy, for whereas in the five years ended 1900 diphtheria was fatal in the average proportion of 478 per 1,000,000 of the population at all ages, in the year 1904 the rate did not exceed 156 per 1,000,000, being considerably below the average for England and Wales. In the year 1904 the counties of Durham, Stafford, and Nottingham, together with certain of the Welsh counties, suffered most severely from diphtheria. In the first-named county the rate, which had risen rapidly throughout the five preceding years, further rose in 1904 to 285 per 1,000,000. In Wales the county of Glamorgan, with parts of Monmouth, still constitutes an area of undue mortality from this disease, the rate ranging from 202 per 1,000,000 in Cardiff to 877 per 1,000,000 in Portardawe. Staffordshire still experiences a mortality from diphtheria considerably in excess of the English rate, although since 1900, in which year the rate amounted to 526 per 1,000,000, the mortality has fallen steadily. In Nottinghamshire the diphtheria mortality has risen continuously from a rate of 131 per 1,000,000 in the year 1899 to 235 per 1,000,000 in 1904.

The eminently preventable disease, enteric fever, still continues to show less fatality in England and Wales as years go on, the disease having accounted for the lowest death-rate on record in the year under notice. Enteric fever attains its highest fatality somewhere between the ages of 15 and 35 years. At all ages except those from five to 15 years it is most fatal to the male sex. The disease is far more destructive to life in the urban than in the rural group of counties; this is especially noticeable as regards males dwelling in towns who die from it practically twice as fast as do those dwelling in country districts. Among counties containing more than 100,000 inhabitants Durham, Lancashire, the East and West Ridings of Yorkshire, and Nottinghamshire were most severely visited in the year 1904, the rates of mortality from this disease ranging from 137 per 1,000,000 living in the first-named county to 162 per 1,000,000 in the county last named. In consequence of the reported presence of cerebro-spinal fever in several parts of England special inquiries have been made as to the actual nature of the malady in cases where deaths have been certified as from cerebro spinal meningitis without further qualification. It is therefore reassuring to learn that in the last five years the deaths from "cerebro-spinal fever" have averaged not more than 55 annually. It is satisfactory to note that in the last four years only two deaths have occurred in England and Wales from hydrophobia, both of which were registered in 1902. This happy immunity from an exceptionally terrible disease is due to the proper administration of the law as regards the muzzling of dogs. In the decennium ended 1890 the deaths from hydrophobia averaged 29 yearly.

Pneumonia is one of the diseases that have shown no tendency to decline in recent years. It is probable, however, that some of the deaths which in earlier years would have been attributed to capillary bronchitis are now returned as from broncho-pneumonia, so that the increase which was recorded in 1904 may be in part apparent only. In this connexion it may be well to intimate that wherever capillary bronchitis is regarded as synonymous with broncho-pneumonia the use in medical certificates of the latter term in preference to the former will tend to increased accuracy in the records of both forms of respiratory disease.

With reference to our leading article upon this report, which appeared in our issue of April 21st, we have received a letter from a correspondent, who is, by the way, an authority on vital statistics, in which he offers a correction of a passage we quoted almost verbatim from the report itself. In this passage we refer to the difficulty of accounting for disparities in the birth-rates of the several European countries, a difficulty which would probably disappear if allowance could be made for differences in the age and sex composition of the population, especially with respect to the proportion of women of conceptive ages. Our correspondent draws attention to a fact, which we confess had escaped our notice, that in the current number of the journal of the Royal Statistical Society there appears a paper by Dr. A. Newsholme and Dr. Stevenson of Brighton in which factors are presented for correction of birth-rates for variations of age and sex distribution, so that any person may readily ascertain how much of the differences of birth-rate is due to the statistical causes alluded to in the report and how much to real differences of fertility. We gladly give publicity to this reference but in so doing we would

remark with regard to the correction of rates of birth (as distinguished from rates of death) that it is questionable policy to pretend to a degree of accuracy which must obviously be unattainable until the statutory registration of stillbirths becomes an accomplished fact in England, as, we believe, it has long been in several foreign countries.

(To be continued.)

UNIVERSITY OF EDINBURGH: IMPORTANT PROPOSED ALTERATIONS IN THE MEDICAL CURRICULUM.

SOME time ago an epitome of a draft ordinance prepared by the court of the University of Edinburgh bearing upon alterations proposed to be made in the regulations for degrees in medicine was given in THE LANCET. There has just been circulated to the members of the general council of the University a more detailed account of the proposed alterations, along with the comments upon them by the business committee of the council. These are so very important that it is desirable to mention them in considerable detail. The proposed alterations are the outcome of numerous conferences and have been discussed by the court, the Senatus, and the Faculty of Medicine. The draft ordinance referred to only deals with the alterations in so far as they require the sanction of the King in Council before being given effect to. The comments and suggestions of the business committee of the council are arranged under the different clauses of the draft ordinance.

Under *Clause I.* it is indicated that the general idea of the scheme is that students should be allowed more freely to pass their examinations by instalments, so that when they have received their instruction in a particular subject they may be forthwith examined in it, and be thus enabled to concentrate attention upon the subjects in which they are immediately undergoing tuition without being distracted by examination requirements in subjects previously studied.

By *Clause II.* it is intended that students may appear at once for examination in any one or more subjects of the *first* division after having attended the class or classes; the *first* division includes botany, zoology, physics, and chemistry.

Clause III. provides for physiology being passed whenever the qualifying course therein has been taken. The examination in anatomy may be taken at any time after the end of the first half-session of the third winter. It is assumed that the recognition of a "half-session" concedes by implication one of the demands supported by the general council for a system of three examinations a year.

Under *Clause IV.* students who have begun medicine in May are to be examinable in pathology at the end of the fourth summer session, and the materia medica examination is to come at the end of the fourth winter. A very important proviso is, however, introduced to enable candidates to be examined in practical pharmacy, and also in the physical, chemical, and botanical characters of medicinal substances at any time after attendance on the qualifying course therein. This the committee thinks indicates that elementary parts of the subject are to be relegated to an earlier stage in the curriculum, while therapeutics is to be reserved until the students have some acquaintance with clinical work.

By *Clause V.* the subjects of the fourth or final examination may be taken after the previous examinations have been passed as follows: forensic medicine and public health at any time; midwifery after the first half session of the fifth winter; medicine and surgery at the end of the fifth winter; and clinical medicine and surgery and gynæcology at the end of the fifth year. The draft ordinance does not prescribe the sequence in which classes are to be attended, but it is thought that its provisions will afford a stimulus to students to follow out the logical order. Two matters not dealt with in the draft ordinance the committee has considered. One of these is that when examinations may be taken in single subjects immediately upon the conclusion of a course of instruction therein the record of work done by the candidate in the class which he has attended ought to form a factor in determining whether he is qualified. The other is that in the opinion of the committee the Senatus should be intrusted with power to restrain a student when desirable from entering upon new subjects of study before he has cleared the examinations in the prior subjects. To enact an absolute bar to such further study might be unwise but to confer on the Senatus a full discretion would be eminently useful, would be a kindness to the student himself, and make for his ultimate efficiency as a practitioner. The alterations embodied in the draft ordinance and the additions recommended by the business committee of the general council reveal an enlightenment of opinion which will be generally and widely appreciated by alumni of Edinburgh. The practical concession of the division of the *annus medicus* into three terms instead of two and of having examinations corresponding to them would be a great boon to the student and whatever lightens the student facilitates and benefits the teaching. Liberty to pass the examination in physiology and anatomy at an earlier date than has hitherto been possible ought to be greatly to the student's advantage in allowing him to give more undivided attention to pathology, therapeutics, and the subjects of the final examination. The separation of pharmacy and the more physical aspects of materia medica from therapeutics is also a step in the right direction; in fact, therapeutics ought properly to be definitely included in the final subjects. The recommendation of the business committee that the Senatus should have power to prevent a student attending classes on more advanced subjects when he has not passed the earlier subjects will meet with the approval of those who have had experience of students as their teachers and examiners. To some it will be a surprise to know that the Senatus has not hitherto had this power. The want of it has allowed students to attend not only systematic but practical courses of instruction when they were not in a position to benefit by the instruction and in a practical class this always means that they act as a drag upon the class and materially complicate and hinder the teaching.

The Carnegie trust.—The new regulations issued by the executive committee of this trust in the fifth annual report have been already given in detail in THE LANCET. The business committee of the general council, in referring to the changes, pertinently points out that by the new regulations the attendance of ordinary students at optional and supplementary classes will be cut down or at least deferred. As these extra classes have often been the direct or indirect result of the other part of Mr. Carnegie's endowment, that for the increase of teaching power, the position is getting anomalous and will demand early attention. One way out of the difficulty would be for the universities to charge annual composition fees for instruction and not fees for individual classes, leaving for adjustment the classes ordinary or extra which a student should be entitled to attend according to the circumstances of his academic career at the time and his own proved fitness.

Greater liberty for the Universities.—It is not generally known that the Scottish universities are strangely hindered in their evolution by Act of Parliament. The court of each university has power to make such ordinances as it may think fit, with the approval of the Sovereign in Council. Before, however, submitting any such to the Privy Council for approval each new ordinance must be communicated in draft by the court to the Senatus and to the general council for their opinions. After final adjustment by the court it has then to be communicated to the courts of the other Scottish universities. Any of the other universities or any person directly affected by the new ordinance may within one month notify dissent and within another month lodge a representation with the Privy Council. The ordinance may be referred to the universities committee of the Privy Council for a report to the Sovereign but cannot be approved until it has been laid before both Houses of Parliament during 12 weeks of session to give those Houses an opportunity of presenting an address praying the Sovereign to withhold assent. The business committee of the general council aptly terms this procedure slow and cumbrous and experience has shown that it is far from encouraging in its results. It is, moreover, in striking contrast with the autonomy enjoyed by the lately created English universities. By this procedure any of the Scottish Universities can practically block any important change which the University of Edinburgh may desire to make and instances are given illustrating how undesirable this state of affairs is. There is no doubt that

the universities ought not to be thus trammelled and hidebound. Freedom for each Scottish University to develop along the lines most suited for its particular circumstances is surely the best for each. The business committee rightly asks, Why should Parliament not be asked forthwith to grant to each university autonomy in some measure corresponding to that conferred on the younger universities in England? The recommendation that the University Court should take this matter up at once will commend itself to all who realise the necessity of enabling the Scottish Universities to adapt themselves readily to the changed conditions of the present times and to the wider conception of the functions of the highest educational institutions in the country which is now widely entertained.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on April 26th, Sir R. DOUGLAS POWELL, Bart., K.C.V.O., the President, being in the chair.

The following gentlemen, having passed the required examination, were admitted as Members of the College: Frederick Samuel Langmead, M.D. Lond., L.R.C.P. Lond.; Charles Hewitt Miller, M.A., M.D. Cantab., L.R.C.P. Lond.; and Athelstane Iliff Simey, B.A., M.D. Cantab., L.R.C.P. Lond.

Licences to practise physic were granted to 101 gentlemen who had passed the necessary examinations.

A report was received, dated April 5th, from the examiners for the Murchison scholarship, awarding the same to Henry Francis Bell Walker, a student of Guy's Hospital. Mr. Walker was in attendance and was handed the award by the President.

The following Members were, on the nomination of the council, elected Fellows of the College: Dr. Samuel Walton Wheaton, Dr. Frederick William Burton-Fanning, Dr. John Hill Abram, Dr. George Henkell Drummond Robinson, Dr. Richard Tanner Hewlett, Dr. Ernest Graham Gordon Little, Dr. Charles Richard Box, Dr. Maurice Craig, Dr. James Purves Stewart, Dr. Thomas Jeeves Horder, Dr. James Hugh Thursfield, and Dr. Edward Farquhar Buzzard.

The following communications were received: 1. From the honorary secretaries of the Second International Congress on School Hygiene, to be held in London, August 5th to 10th, 1907, inviting the College to appoint two representatives to be members of the general committee. It was resolved that representatives of the College should be appointed and it was left to the President to nominate them. 2. From the University of Aberdeen inviting the College to send a delegate to represent the College at the Quatercentenary Commemoration Festival in September next, to be the guest of the University and of the city. The invitation was accepted and it was resolved that the President should represent the College on that occasion. 3. From Messrs. Goupil's (art publishers) successors, asking permission to photograph the portraits of Dr. Arbuthnot and of Sir Samuel Garth, in possession of the College, for illustrating a work which they have in hand. The request was granted. 4. From the secretary of the Royal College of Surgeons of England reporting proceedings of its Council on April 5th.

The quarterly report, dated April 6th, of the College Finance Committee was received and adopted.

A communication was received from Dr. J. Abercrombie, resigning the office of curator of the museum. The resignation was accepted and the thanks of the College were ordered to be given to Dr. Abercrombie for the services he had rendered to the College. Dr. W. H. Allchin was appointed to the office on the nomination of the President.

The books and other publications presented to the library during the past quarter were received and the thanks of the College were ordered to be returned to the donors.

The quarterly report of the Examiners for the Licence on the January examinations was received and adopted.

The PRESIDENT then dissolved the Comitia.

AT the meeting of the Chard (Somerset) rural district council held on April 22rd it was resolved to erect a small-pox hospital at a cost of about £250.

THE FIFTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

Held at Lisbon, April 19th—April 26th, 1906.

FINAL MEETING OF THE GENERAL INTERNATIONAL COMMITTEE.

(FROM OUR SPECIAL COMMISSIONER.)

Lisbon, April 28th.

ON Thursday morning, April 26th, at about 10 o'clock, the International Committee met in the great hall of the new School of Medicine and first decided by 38 votes against 23 that the Government delegates might be represented by substitutes. This was fortunate, for the *Ophir* was by that time far away at sea on its way homewards with Sir Dyce Duckworth on board. Sir John Tyler, however, was by this vote accepted as his substitute. Then came the question of where the next International Congress should meet. The General Secretary, Dr. BOMBARDA, explained that four positive invitations had been received. These were from Athens, Brussels, Budapest, and New York; some advances of a less positive character had also been made from Tokio. The executive committee of the present Congress had been in negotiation with the Hungarian committee for several months and found that the Hungarians were evidently animated by the best intentions and that the Royal Government and the municipality of Budapest had already voted funds in order that the Congress should be properly organised. The American delegates nevertheless made a great struggle for New York. Remembering, however, that the International Congress on Tuberculosis accepted the invitation to meet in the United States of America before the next Presidential election, the two Congresses would undoubtedly clash. It is not practical to expect European medical men to go to America twice within the course of a few months. Ultimately Budapest was accepted by 38 votes against 26 and one abstention. The next Congress will, as usual, be held in three years, but a request will be made that the invitations sent for the ensuing Congress shall not bear a date, so that when at Budapest the Congress will be free to decide whether it will meet again after an interval of more that three years.

A petition, which was signed by several medical men dentists, was then read, asking that dentists who were not medical men should be admitted to the Congress. Dr. CRUET (France), on the contrary, congratulated the committee for having excluded the dentists who were not medical men and when the matter was put to the vote a large number of hands was held up in favour of excluding dentists who are not fully qualified practitioners. The contrary opinion was not clearly taken but it was quite evident that the decision was approved by an overwhelming majority.

The fact that the General International Committee had at a previous sitting decided to allot the Paris prize to Dr. Ehrlich and the Moscow prize to Dr. Laveran was mentioned, and then Dr. Bombarda hurriedly read out some of the resolutions adopted by the sections. It was difficult to understand why this was done as there was no opportunity of discussing the points raised or voting upon them. Such votes or semblance of votes as were given at this stage were recorded very carelessly. Many persons were in the room who did not belong to the Committee and there was nothing to prevent them voting also.

THE CLOSING CEREMONY.

A little after 2 P.M. the great hall was well filled with members of the Congress who came to assist at the solemn closure.

The chair was occupied by the President of the Congress, Councillor Dr. Costa Alemão, with the general secretary, Dr. Miguel Bombarda, by his side. Both wore the broad lilac ribbon, gold chain, and crimson cross of the Grand Cross of the Order of Santhiago, which had just been conferred on them by the King in recognition of their distinguished scientific services.

The PRESIDENT read out a statement in which he said that all had gone well. From abroad and at home willing help had been received and then the President proceeded to thank everybody. On mentioning Dr. Bombarda's name a great ovation took place, everyone rose, shouted, waved hats, handkerchiefs and press notebooks. The treasurer, Dr. Alfredo

Lopes, the assistant secretaries, Dr. Antonio de Azevedo, Dr. F. de Mattos Chaves, Dr. Mello Breyner, Dr. Silva Carvalho, and Dr. Azevedo Neves, were also mentioned and their names greeted with well-merited applause. Nor was the press omitted and gratitude was expressed for its services in having helped to draw people to the Congress and for diffusing the knowledge which the Congress had attempted to bring forth. Of course, the King and all those who had provided any sort of hospitality were mentioned in grateful terms and the speech concluded with cheers for the Royal Family, for Portugal, and Hungary as the host of the next congress.

Dr. FERDINAND CARO, who was the general secretary of the last Congress which met at Madrid, now rose on behalf of all the foreign delegates and members to thank the King of Portugal who came in person to the Congress so as to show his courtesy and his esteem of the medical profession. The members had attended so as to describe the progress accomplished in each country. Some came to teach, others to learn, and all to coöperate in the advancement of science. In the book of science they had now written another page. The work was over; in a few hours many would be leaving Portugal, but they would never forget what they had seen and the kindness they had experienced.

The SECRETARY-GENERAL then announced to whom the Moscow and Paris prizes had been given and the Congress applauded the choice made. Then the band, placed in a neighbouring room, persisted in playing a somewhat melancholy hymn which presumably is the official Hungarian National Anthem. The Rackotsky march would certainly have been more generally recognised and appreciated. The bandmaster, however, seemed to think it his duty to play the official hymn every time he heard the word Budapest mentioned. The Congress thereupon stood meekly like so many penitents in gloomy silence till the band had finished its lugubrious performance and the business of the day could be resumed. It was only at the cost of hearing the hymn over and over again that we could be informed who would preside at Budapest. The Sixteenth International Congress of Medicine, which is to meet in 1909, will have for President Professor Colman Müller and for general secretary Professor Emil Grósz.

Dr. DE TOTH, on behalf of Hungary, returned thanks to the Congress for having accepted the invitation tendered by his fellow countrymen. He appealed for help from all nations and promised that the Hungarians would do their best to insure the success of the next Congress.

The Secretary-General had contrived during the course of this sitting to again read out very hurriedly some of the resolutions carried in the sections. This was a mere form and no serious vote could be taken. In fact, the marvel of it is that, in spite of the repeated hymn-playing, the whole sitting lasted barely more than half an hour. The wearying succession of nationality speeches had been replaced by a few very brief but eloquent sentences from Dr. Caro. With the exception of the President's opening address there had been no speeches; thus to the surprise of all and the relief of not a few the sitting was concluded in less time than at any of the previous International Congresses. Formal notice of termination was followed by an outburst of tremendous enthusiasm.

As Dr. Bombarda and the President stepped off the platform they were surrounded by numerous members eager to grasp their hands and to embrace them. Not a few, especially the Portuguese members, fell in each other's arms and indulged in many wild and excited manifestations of their joy at finding that the Congress had proved so complete a success. Loud were the shouts, the laughter, the cheers that accompanied the President and the general secretary as they struggled through the excited and grateful crowd from the hall to their private office. The Congress certainly ended joyfully. Everybody seemed pleased and happy.

THE SECTIONS.

THERAPEUTICS AND PHARMACOLOGY.

Heliotherapy.

Dr. EDOUARD MASIP (Madrid) read a paper upon this subject. He began by some remarks upon the physics of light and then proceeded to give an account of the ways in which this form of energy had been utilised as a therapeutic agent. His conclusions were as follows. 1. Solar light acts in a physiological, hygienic, and therapeutic manner. 2. The thermo-photo-chemical phenomena produced upon the organism by the solar radiation can be scientifically explained by a reference to absorption and reflection, aided by refraction, dispersion, diffraction, and polarisation. 3. Synchronic vibrations between the ether (the transmitter) and our organism bring about the absorption of the solar radiations, whether thermal or actinic; asynchronism, on the other hand, causes their reflection. It is fair to suppose that a similar action can be attributed to the invisible portions of the spectrum. 4. Solar light acts upon the organism as a microbicide by modifying the cellular elements and by destroying the pathogenic elements. 5. The results obtained from solar radiation are in direct ratio to its duration and its intensity. 6. Heliotherapy produces two classes of essential phenomena upon our organism, the one of an exciting and the other of a depressing nature. By bringing about these effects we can treat a number of maladies, such as, for instance, those of the skin, gout, rheumatism, lupus, malignant new growths if they are superficial, diseases of the kidney, tuberculosis, anæmia, pharyngitis, and others. This form of energy is bound to have a place in the therapeutics of the future.

The Hypodermic Injection of Oxygen.

A paper on this subject was communicated to the Congress by Dr. J. DÓMINE and Dr. J. CHABAS, both of Valencia. They stated that, so far as they knew, the first instance of the employment of oxygen as a therapeutic agent by hypodermic administration was when Dr. Dómine used it in 1900 at Valencia. The discovery was accidental and came about owing to a faulty apparatus with which Dr. Dómine was trying to inject physiological serum in a case of typhoid fever. Air was injected as well and the results were so good that he attributed them to the oxygen. He therefore made trial of the injection of pure oxygen with great success. Dr. Dómine and Dr. Chabas gave an account of various cases of disease in which the treatment had been tried. To put it broadly, it was useful in all conditions where there was either stasis of the blood current or neuritis, such as carbuncle or sciatica, or any condition in which the blood was not properly oxidised. No evil effects had ever been noted to follow the use of oxygen. They used an apparatus consisting of a reservoir for the oxygen which led into a wash bottle. From the wash bottle the gas passed through a tube provided with two bulbs having valves, and the last bulb communicated by a short piece of tubing with an ordinary hypodermic needle. The oxygen when injected into the cellular tissue was rapidly absorbed. It had a local mechanical action and a general chemical action.

Dr. DOYEN (Paris) read a paper upon

Proteol.

He said that the principal antiseptic powders used in surgery were salol and iodoform, but he had found that they were comparatively inert, and in searching for a substance of the same class but possessed of greater energy he had discovered proteol, a powder in which formic aldehyde was combined with casein. If three test tubes six inches long were half-filled with neutral or slightly alkaline culture bouillon, inoculated with any virulent bacteria or even with fæcal liquid, and mixed one with salol, one with iodoform, and one with proteol, it would be found that the two first gave an abundant growth in from 12 to 24 hours, while the tube containing proteol remained sterile. Compounds of formic aldehyde and casein have been already described by various writers but they all have the disadvantage of being prepared in an autoclave at a temperature of 100° C. or higher, temperatures at which formic aldehyde was polymerised and rendered inert, whereas proteol was prepared at the ordinary temperature and the bactericidal energy of the formic aldehyde remained unimpaired. Compounds of formic aldehyde with gelatin and egg albumin have also been described but they were open to the objection of becoming swollen by contact with the fluids of wounds and afterwards adhering like partly dried starch. Proteol, on the other hand, remained a powder after being wetted by the fluids of wounds and had no characteristic odour. It was well adapted for disinfecting both the surgeon's hands and the patient's skin at the site of an operation. For this purpose the powder might be mixed with the lather of ordinary soap, or it might be used in the form of a special proteol soap (*crème de savon au protéol*). Proteol answered well as a dressing both for the incisions in the skin left after operations and for chronic ulcers of the leg; gauze impregnated

with it was useful for insertion into infected cavities or as a dressing for infected wounds.

MEDICINE.

Dr. G. W. M'CASKEY (Fort Wayne, U.S.A.) read a paper on

The Action of Diseases of the Digestive Tract in the Production of Arterial Hypertension.

The splanchnic circulation was regarded as one of the most important regulatory mechanisms of the arterial tension and was closely connected with the digestive organs. Diseases of the digestive organs might affect the tension in two ways: (1) by reflex nerve influences; and (2) by the absorption of toxic products. The latter was probably the more important method. Three questions were then discussed: (1) Could chemical products in the circulation lead to prolonged hypertension and arterial sclerosis? (2) Did such products act directly or indirectly? and (3) Could the products of the intestinal flora lead to such results? Dr. M'Caskey related clinical evidence in support of his conviction that toxic absorption from the intestines led to arterial hypertension.

Dr. JULIANO MOREIRA and Dr. AFRANIO PEIXOTO (Rio de Janeiro) communicated a report on

Mental Diseases in Tropical Climates.

They summed up their observations under the following headings: 1. No pathological form of mental disease differing from that of other climates existed in the so-called tropical zones, neither amongst the natives of the country nor among the Europeans. 2. There was no relationship between the cases of insanity occurring in Rio and the other towns of Brazil and the maximum temperature of these towns. 3. There was no correlation between the climatic states (temperature, moisture, &c.) and the number of cases of insanity in the warm parts of Brazil. 4. The meteorological and seasonal influences on the insane presented individual differences in warm climates just as they did in cold climates and no general rules on that connexion could be formulated. 5. The influence of the tropics on the nervous system of persons coming from cold climates varied with the individual but was usually associated with their modes of life and their nervous organisations. 6. There was no reason to believe that in tropical climates there was a greater frequency of psychoses connected with malaria. Their presence in malarial patients depended on other factors. 7. The climate had no influence on the symptoms of the various psychoses. The cause of any differences depended on the degree of education of the individual. A pure descendent of pure Caucausians if brought up in the interior with ignorant people would exhibit the same elementary insanity as the uneducated coloured people.

Dr. FRANCISCO FAJARDO (Rio de Janeiro) read an official report on

The Etiology and Prophylaxis of Yellow Fever.

In 1900 the American Commission had published its experiences, which had given a new direction to the study of yellow fever by demonstrating its transmission by the *stegomyia calopus*. The history of the triumph of Cuba over yellow fever was described; it had been accomplished by the careful methods of exterminating the mosquito adopted by Dr. Gorgas. Dr. Fajardo believed that in time there would be no cases of yellow fever in Rio de Janeiro, New Orleans, or in the zone of the Panama Canal. He summed up his conclusions thus: 1. Although Sanarelli's works had not received scientific sanction with regard to the cause of yellow fever they were a remarkable scientific contribution inasmuch as they shed great light on the pathological anatomy of the disease. 2. Up to the present insignificant benefits had arisen from the recent study of yellow fever with regard to its diagnosis, prognosis, and treatment. 3. The etiology of yellow fever had not so far been discovered definitely but recent research had been of value in pointing out the direction for future work; this had been done by the American commission and the Pasteur mission. 4. In Brazil the obstinate and prolonged struggle against the mosquito in general and against the propagation of yellow fever in particular would soon banish the disease from Brazilian territory, as was witnessed by the work effected in connexion with the discovery of the epidemic sources in Rio. 5. Simple transmission of yellow fever by the stegomyia could occur during the day between 9 and 3 o'clock, though rarely. 6. To-day the prophylaxis of yellow fever rested on scientific facts and could be applied everywhere with a satisfactory result.

Dr. AARAO FERREIRA DE LACERDA (Oporto) read a paper entitled—

Some Observations on the Intensive Mercurial Treatment of General Paralysis.

From February, 1904, to March, 1905, he had, in conjunction with Dr. Magalhães Lemos, experimented therapeutically in 15 cases of general paralysis, in accordance with the precepts set forth by Leredde in his book, "The Syphilitic Nature and the Curability of Tabes and General Paralysis." In 11 out of the 15 cases syphilis had undoubtedly been in operation, in one alcoholism only was present, in one the history was uncertain but syphilis was probable, and in two no history could be ascertained. All were marked cases of general paralysis, having passed through the early stage of the disease. The time elapsing between the syphilitic infection and the onset of general paralysis had in 13 of the cases varied from five to eight years; in two cases it had been over ten years. The following treatment had been administered: (*a*) First mercurial treatment from Feb. 14th to May 13th, 1904, with an interval of rest from March 28th to April 6th. Intramuscular injections of benzoate of mercury every second day and later daily in doses of four and a half, increased to 11, milligrammes. Then followed a month of rest. (*b*) Second mercurial course from June 13th to July 6th; injections of hermophenyl daily, rising from one centigramme to 12 centigrammes dose. After an interval of ten days' rest iodide of potassium was given after three meals daily, the dose being increased from one gramme to 12 grammes daily. After an interval of 33 days the second course of iodide of potassium was commenced. A daily dose of three grammes was gradually increased to 12 grammes. An interval of 65 days was then allowed. (*c*) The third course of mercurial treatment was started on Jan. 27th and lasted to March 3rd, 1905. Intramuscular injections of hermophenyl were given, at first every second day and then daily, in doses increasing from one to 12 centigrammes. Detailed accounts were given of the symptoms of the 15 cases and the results of treatment were not encouraging. Treatment by mercury had always been stopped if the patient lost weight or developed albuminuria or an oscillating temperature. The conclusions arrived at were: 1. That mercury can be administered in the quantities indicated without danger of skin manifestations, stomatitis, or intestinal disturbance. 2. In each course of treatment not more than 22 injections should be made and they must be injected deeply into the upper third of the buttock. 3. Mercury was injurious in the third stage of general paralysis and (4) in the second stage it was harmless; the disease followed its usual course independently. 5. Iodide of potassium in all cases led to tachycardia and feeble pulse. 6. The biniodide of mercury was an excellent preparation for this method of treatment. The hermophenyl produced no pain and was easily managed. 7. The lack of success in the cases described was explicable because none of them had been treated in the initial stage of the disease.

Dr. ANTONIO MUÑOZ RUIZ DE PASANIS (Cazorla) read a paper on

Cardiac Arrhythmia.

He said that arrhythmia might be either organic or functional, the former being due to causes which affected the structure of the cardiac muscle and the latter being brought about through the agency of the nervous system. There were, however, some disturbances of the innervation of the heart which did not give rise to arrhythmia. Any interference with the pneumogastric or the great sympathetic would, for instance, produce not arrhythmia but tachycardia or bradycardia. It was not at present possible to classify the various forms of nervous arrhythmia in accordance either with clinical observation or physiological experiment. The mechanism of arrhythmia could be explained in conformity with the distribution of the muscular fibres in the auricles and ventricles, and their mode of action. The muscular fibre of the heart always contracted rhythmically, rhythmic action being one of its essential properties, but rhythmic action did not imply the co-existence of synchronism, because two organs might move rhythmically although not synchronously. For two organs to move synchronously there must be some link connecting them, and there must also be a cause which determines the instant when the movement begins. Now the auricles and

ventricles are structurally connected by their muscular fibres, and in order that they may move synchronously the nervous system must supply both with the necessary stimulus. When this stimulus was not supplied to each at the same instant, whether from mutual interference of the nervous currents or from inhibition of one of the nervous fibres of one auricle or one ventricle, the result was the production of nervous or functional arrhythmia.

The Treatment of Sundry Nervous Diseases by Methodical Exercises.

Dr. MAURICE FAURE (La Malou) read a paper upon this subject. The paper dealt with ataxia, paraplegia both spastic and otherwise, hemiplegia, "tics," cramps and tremors, functional paralyses, various forms of sclerosis, and infantile paralysis. In all these forms of disease or results of disease except sclerosis graduated exercises carefully carried out had been found to do good, although the results were not all equal in every class of case. The best and most lasting results had been obtained in ataxia. In hemiplegia they were not so lasting and in paraplegia and the other diseases considered there was not enough experience to found any definite opinion as regards the duration of any benefit which might accrue. In hemiplegia the treatment, massage and passive movements, ought to be begun as soon as possible after the stroke. In this way the pain, the atrophy, and the malposition which were so often the results of hemiplegia might be almost altogether avoided or at least minimised. If the treatment was only begun after the appearance of arthritis, of contractions, of atrophy, or of malposition but little good could be hoped for.

PEDIATRICS.

Dr. OSCAR VULPIUS (Heidelberg) read a paper upon

The Treatment of Infantile Spinal Paralysis.

He said that he would confine his remarks to treatment by means of a portable apparatus and to treatment by means of arthrodesis and tendon transplantation. With respect to the wearing of an apparatus his opinion was that its disadvantages exceeded its advantages and that the use of any such appliance ought to be avoided as much as possible. Good results were, however, obtainable by arthrodesis in cases when there was either total paralysis of all the muscles in connexion with a joint or when so little power remained that no control could be exercised over the movements of the joint. Dr. Vulpius has very often performed this operation on the ankle, the knee, and the shoulder, but he has, on the other hand, avoided the production of ankylosis in the hip-joint, the elbow, and the wrist. In the operation he exposed the articular surfaces freely and removed the cartilage so that the bone appeared here and there. In the case of the shoulder he sutured the two bones with silver wire but in the other joints he allowed ankylosis to take place naturally, maintaining fixation, however, by means of a well-fitting plaster splint worn for at least three months. In the ankle the uniform result was firm fibrous ankylosis of the joint in the rectangular position. In order to keep the foot raised it was well also to shorten the three anterior muscles of the leg and to fix them to the periosteum of the tibia. An unsuccessful result was rare but was sometimes caused by hypermobility of the other articulations of the bones of the foot. Flat-foot might occur if the patient began to walk too soon but this seldom happened. In the knee the articular surfaces must be freshened most freely, otherwise there was likely to be not only imperfect fixation but a tendency to flexion of the joint from contraction of the tendons. After the completion of the arthrodesis it was therefore well to resect the flexor tendons and to suture the extensors in a position of tension. Dr. Vulpius had never known hyper-extension to occur. When both knees were affected he performed arthrodesis on only one and fixed the other in a portable apparatus. Arthrodesis of the shoulder should be performed only when the muscles of the forearm were sound and when the mobility of the hand was hardly, if at all, affected. The ankylosis ought to bring the arm into a position of abduction and elevation. The foregoing procedures were intended only for the relief of total, or almost total, paralysis. In partial paralysis, which was much the more frequent of the two, he strongly recommended tendon transplantation. So far as possible he employed total transplantation, using the whole of the sound muscle and tendon, but when partial transplantation was necessary he divided the tendon quite up to the muscle in order to insure the functional independence of the transplanted part.

PSYCHIATRY, NEUROLOGY, AND CRIMINAL ANTHROPOLOGY.

General Paralysis in Spain.

Dr. RODRIGUEZ-MORINI (Barcelona) read a paper entitled "A Contribution to the Clinical Study of General Paralysis in Spain." He commenced by giving a brief account of the recognition of the malady as a definite and separate disease and then discussed the incidence of the disease, its etiology, and its predominant clinical forms. His conclusions were that general paralysis was a disease of such interest that every fact concerning it which it was possible to collect should be classified in order to throw light upon the many disputed points which still exist. Spanish physicians have up to the present contributed but very little to the subject. The statistics of mental diseases in Spain as at present published give little indication of the true frequency of general paralysis. Dr. Rodriguez-Morini, who is the physician in charge of the asylum of San Baudilio de Llobregat at Barcelona, had founded his paper upon facts noted by himself in the asylum where he was in charge and upon information obtained through the courtesy of the heads of other Spanish asylums. From the figures obtained he was able to say that the proportion of general paralytics among the male asylum patients in Spain was from 5 to 6 per cent. on the average. In the north of Spain the percentage ran up to 8 per cent., a rise which was probably due to the greater frequency of drunkenness in the north as against the south. Among the female inhabitants of asylums the proportion was only 1 per cent. The ages of the patients were, as a rule, between 32 and 48 years. General paralysis scarcely ever appeared before the age of 25 years or after the age of 50 years. It was far more common in townsmen than in countrymen, more common among the married than among the single, and more common among members of the liberal professions than among artisans and workers with their hands. In 90 per cent. of the cases syphilis was the chief etiological factor. To alcohol were due probably 8 per cent. of the cases and in 2 per cent. no definite cause could be assigned, although it seemed probable that some acute infection was at work.

DERMATOLOGY AND SYPHILIS.

Dr. SUAREZ DE MENDOZA (Paris) read a paper on

Syphilis of the Intestine.

He pointed out that little has been written on this subject and therefore he described a case under his own care. A man, 62 years old, complained *inter alia* of a persistent diarrhœa which had lasted eight years and had resisted all treatment. As the patient had lived for many years in the tropics a diagnosis of "tropical diarrhœa" was made and suitable treatment was employed; much improvement followed, though as soon as the treatment ceased the diarrhœa returned. In spite of the absence of a syphilitic history, Dr. de Mendoza decided to employ antisyphilitic treatment and gave hypodermic injections of hermophenyl, at first two centigrammes a day, increasing to eight centigrammes daily. Ten days after the commencement of treatment the diarrhœa was much better and after the thirtieth injection the patient was well; noises in the ears and some laryngeal trouble from which he had suffered also improved. Iodide of potassium was then given (four grammes a day) and a month later the patient ceased treatment. He was advised to have every three months 20 daily injections of hermophenyl, followed by 20 days' treatment with the iodide. A year later he remained well. Dr. Mendoza has collected the literature of the subject and he finds that the first case diagnosed as syphilitic affection of the intestine seems to have been described by Cullerier in 1854, but Monteggia in 1794 described a necropsy in which syphilitic ulceration of the whole of the large bowel was present. From a consideration of his own case and of those recorded Dr. Mendoza comes to the following conclusions: (1) That intestinal syphilis is much less rare than is ordinarily supposed; (2) it affects especially the end of the small intestine and the large intestine; (3) the symptoms are few and indefinite and the diagnosis is difficult; and (4)

if a diarrhœa proves rebellious to ordinary treatment anti-syphilitic measures deserve a trial even though there is no history of syphilis.

SURGERY.

Dr. A. CODIVILLA (Bologna) read a paper on

The Indications for the Transplantation of Tendons.

His opinions were founded on the results of 415 operations which he had performed. Many of the cases had been followed up and examined from time to time to see whether the results were permanent. He did not employ the operation for certain cases in which he formerly used it. His experience had taught him that it was necessary to have more muscular force available than he used to think necessary, for a certain part of the power was lost in consequence of the new mechanical conditions to which the tendons and muscles were subjected. Unless attention be paid to the importance of having a distinct excess of available muscular power it would be useless to expect any movements after operation. Muscles already weakened by disease were useless for transplantation of tendons. For spastic paralyses also much good might be done and athetotic and choreiform movements might wholly cease on transplantation of tendons; but in all these cases the same rule held good that there should be a notable excess of power in the muscles above that which was apparently required. If this excess was not present no movement could be expected and so the method was then to be compared with other methods of joint fixation. Age offered no absolute contra-indication, but it must be borne in mind that the trophic condition of the muscles and functional adaptability became less with increasing age. Site had little influence, but the lower leg and the forearm were the most favourable regions of the body. As to the results, he considered that in suitable cases the method was without a rival. Possibly in the future plastic operations on nerves might in part replace the transplantation of tendons, but not at present.

Dr. MILIAN (Paris) read a paper on

Leucoplakia.

He commenced by pointing out the lack of agreement amongst authors as to the definition of the word but he applied it to all persistent white patches of the mucous membranes. The white colour was not due to the presence of any horny layer or even to the presence of eleidin; neither was it caused by any hardening of the derma. It was due to a change in the cells of the mucous membrane. They had undergone a chemical change, the proteid having become white; and this might be compared to the white appearance of some ascitic fluids. Histologically there were present hypertrophy of the cells, a basophil condition of the protoplasm, slight interstitial œdema, and nuclear hyperplasia. These conditions were the result of irritation; they were associated with inflammatory changes in the derma of the mucous membrane. Leucoplakia was an indication of a functional superactivity and not of a degeneration. It was the result of irritation by toxic substances. Leucoplakia was generally secondary to changes in the derma (secondary leucoplakia) but rarely it constituted the sole abnormal condition (primary leucoplakia). Many lesions might give rise to leucoplakia, such as papules, erosions, and ulcerations. As to its etiology there were certain conditions, such as epulis, psoriasis, and balanitis, which never gave rise to leucoplakia, whilst there were others, such as lichen planus, lupus erythematosus, and syphilis, which might cause it. The question arose, Were there ever any cases of "idiopathic leucoplakia"? Probably not; all cases apparently idiopathic were fairly certainly syphilitic in origin. There were many arguments in favour of this, such as the great resemblances between lingual syphilis and leucoplakia of the tongue, the presence of a syphilitic history in 80 per cent. of the cases of so-called idiopathic leucoplakia; and especially the facts that a careful examination would show the presence of syphilitic characters and that mercurial treatment would cure nearly all of them. As a predisposing cause the arthritic diathesis was of some importance and local injury, due to eating and smoking, had some effect. The pathological change present was a keratinisation of the mucous layers and a sclerosis of the derma. The colour of a patch of leucoplakia varied from a bluish-white to a milk-white and the surface might be smooth or ridged or papillary. An elaborate table was given of the varieties of leucoplakia in relation to the cause and appearance. Dr. Milian said that though there could be no doubt that epithelioma might develop from leucoplakia yet he could give no definite explanation of the transformation. As to treatment, when all the forms due to lichen planus and similar conditions had been put aside—for they needed their special forms of treatment—there remained only cases of syphilitic origin, and at least 80 per cent. of the cases were syphilitic, when antisyphilitic treatment should be employed. Locally the avoidance of all forms of irritation was important, such as strong tooth powders and caustics. The mouth should be kept clean by the tooth-brush and soothing gargles. Alcohol, wine, and tobacco should be avoided. Internally iodide of potassium was useless. Mercury should be given hypodermically. One important point was that the treatment should be long-continued and six months was the minimum for continuous treatment and for two or three years an intermittent treatment should be carried on. Gray oil and calomel were the only suitable substances for injection, but a keen look-out should be kept for signs of poisoning. At the end of three months there should be an interval of four weeks and then the treatment should be resumed. By this method of treatment the ulcerations healed, the deep lesions softened, and the tongue regained its suppleness. The leukoplakia diminished in extent but some patches would always remain. The tongue should always be watched so that surgery might intervene as soon as a suspicion arose of a malignant transformation. There was much to be said in favour of a surgical removal of the patch in the pre-cancerous stage but a preliminary mercurial treatment should always be employed and the excision should not be limited to the epithelial layer. Prophylactic treatment was of great importance and leukoplakia should be prevented by a thorough mercurial treatment of all syphilitic lesions.

LARYNGOLOGY, RHINOLOGY, OTOLOGY, AND STOMATOLOGY.

Professor RAYMOND DE LA SOTA E LASTRA (Seville) read a paper upon

The Diagnostic Difference between the Lesions of Tuberculosis, Syphilis, and Cancer in the Larynx.

The conclusions which he arrived at were as follows. 1. Tuberculous laryngitis is a hereditary complaint and appears at an early period of life. Syphilis is also hereditary but the laryngeal infection is found more usually in the acquired variety. Cancer is not hereditary nor present before the age of 40 years. 2. Tuberculous disease of the larynx is always accompanied by other tuberculous lesions. The same applies to syphilis, while in cancer the reverse obtains. 3. Disturbance in the voice is one of the cardinal features in tuberculosis, with dysphagia, night sweats, &c. In syphilis the general health is usually good, though sometimes dysphagia is present. Cancer may exist for a long time accompanied only by hoarseness. After ulceration has set in a horrible stench is observed, with cachexia and referred pains. 4. It has usually been considered that these referred pains are present only in cancer, but they are also present in a less degree both in tuberculosis and syphilis. 5. The odour exhaled in cancer is unmistakeable. The expectoration in syphilis is very fœtid but different in character, while the exhalations in tuberculosis are not offensive. 6. Deformity of the thyroid cartilage is more pronounced in cancer than in tuberculosis and syphilis. In syphilis this frequently represents the carapace of the tortoise. 7. In tuberculous laryngitis more or less congestion is seen on microscopic examination; at other times there is anæmia of the mucous membrane showing ulceration of special parts, especially the arytenoid. 8. In lupus the point of infection is the epiglottis. In syphilis during the secondary period great hyperæmia is present, together with multiple small ulcers. In the tertiary period gummatous tumours are found either of the same colour as the surrounding tissue or of a more yellowish hue. Cancer commences by a tumour on the cord, usually posteriorly and to the left, extending into the arytenoid region near the cord, and eventually involving the whole of the tissues of the organ.

Dr. F. J. MOURE (Bordeaux) read a paper upon

Different Forms of Suppuration in the Maxillary Antrum.

The varieties of suppuration in the maxillary antrum he classed under two cardinal headings—acute and chronic. The acute, he said, are (1) simple or catarrhal; and (2) infectious or osteomyelitic. The chronic are (1) of dental

origin—(*a*) from direct infection or empyema, and (*b*) from suppuration of dentigerous cysts; (2) of nasal origin—(*a*) from muco-purulent infection, and (*b*) from atrophic rhinitis, caseous rhinitis, or syphilitic rhinitis; (3) from foreign bodies; and (4) from trauma. In the simple forms of the acute disease there is no pain if the orifices of the antra are large and the pain is increased in proportion to the smallness of the opening. Photophobia, a sensation of weight, with perhaps some œdema of the face and of the lower eyelid, are the most marked features. In the infectious variety the pain is more intense and of neuralgic violence and usually unilateral. It is present especially in the region of the eye on the same side. Photophobia and lacrymation are marked, the temperature is raised, and there are considerable swelling and œdema. Mastication is difficult. Death not infrequently occurs as the result of an intense infection, but this is fortunately rare. Immediate operation is advised. In the chronic cases dental infection is either followed by the disappearance of the epithelium lining the cavity or abundant proliferation of the tissues in the neighbourhood of the diseased teeth. The symptoms of the condition, as also the treatment, were, he said, too well known to need further remark. The point of chief interest in regard to suppurating cysts is that the diagnosis is usually made at the time of operation. The traumatic cases and those caused by foreign bodies are usually the result of malhandling on the part of the dentist, either fracture of the alveolus, penetration of the sinus by forceps or an elevator, or the forcing into the cavity of a piece of bone.

Mr. C. E. WEST (London) read a paper on

The Occasional Influence of Adenoids and Aural Foreign Bodies on the Causation of Epilepsy.

The views of Sir William Gowers with regard to antecedent causes of epilepsy were briefly given, and the general view was expressed that there is a wide range of degrees of cortical readiness of response, passing up from those conditions known as normal to those of pathological instability, when powerful or continued irritation may succeed in firing off a generalised explosion. Finally, reference was made to those cases in which the degree of instability is so great that a stimulus so faint as to defy detection, or perhaps the mere accumulation of some product of living processes, is sufficient to cause the onset of an epileptic fit. Working on this hypothesis the possibilities of naso-pharyngeal obstruction, which so frequently produced delayed and impaired intellectual vigour, and was not uncommonly connected with rickets, were reviewed as possible factors in the causation of epilepsy, and reflex conditions, such as asthma, polypi, cough, and granular pharyngitis, were quoted. Several cases were given, showing that after removal of adenoids epileptiform convulsions, which were previously present, had ceased. As regards foreign bodies in the meatus, however, there seemed, said Mr. West, to be a question as to whether the effect of these foreign bodies was an exaggerated attack of aural vertigo or an epileptic fit, though several cases were quoted as evidence of its being the latter.

Dr. GEORGES MAHU (Paris) read a paper on

Injections of Paraffin Wax in Rhinology.

The first portion of this communication dealt with the literature on the subject up to the end of last year. Interstitial injection of vaseline and paraffin, submucous injection of paraffin, and several other methods were considered. The injection of vaseline, said Dr. Mahu, was soon abandoned for various reasons, the principal one being its rapid absorption, and hard paraffin took its place. The effect of the presence of paraffin in the tissues was then dealt with. Foreign bodies were considered, physical, mechanical, toxic, and septic. A large number of instances were quoted in which accidents had occurred under each of these headings, but these could most effectually be avoided by the most absolute asepsis, the employment of paraffin melting at a high temperature, and a careful limitation of the injection. When the injection was made into the turbinate bone, however, the employment of cold injections was recommended. The next consideration was as to whether these injections were permanent. If a hard wax were used, or one melting at a high temperature, relative permanence of the effect produced was insured. External injections with cold paraffin were recommended for congenital deformities, such as malformations of the nose, slight clefts in the hard palate, and for acquired deformities, such as the destruction of the nose following syphilis, malformations produced by cicatricial contraction, and in cases in which part of the nose or cartilage had been lost by trauma, deformities following surgical intervention, especially in connexion with the accessory cavities, and hemiatrophy of the face. The injections should not be used when the person was suffering either from an acute or a chronic illness or when the tissues into which the injection was to be made were bound very tightly down into the subjacent bone. The technique was very carefully considered. Intranasal injections were also reviewed.

Dr. JAIME DE LOSADA read a paper on

The Treatment of Pyorrhœa Alveolaris.

The first class of case was characterised by the inflammation of the edge of the gum produced by the mechanical irritation of tartar. The second class was distinguished by the complete absence of mechanical irritation and the malady was largely confined to the periosteum. In the first class the affection originated in the region of the root, the remainder of the fang being normal. The prognosis was favourable and the treatment consisted in the removal of the cause of irritation, curettage, and the cleaning away of every particle of foreign matter, proceeding as far down the fang as was necessary and cleaning out all pockets with a jet of hot water containing some germicidal and astringent in solution, such as trichloracetic acid. In the second class the prognosis was usually unfavourable, but treatment should be commenced at the earliest possible date. It should consist chiefly of general hygiene of the mouth and constitutional remedies for arthritis should be administered. Curettage and germicidal and astringent irrigations should also be employed in these cases. Perchloride of mercury was especially recommended as an antiseptic. A third class of case was distinguished by degeneration and increase of periosteum of the fang, frequently accompanied by the formation of calculi, together with the presence of urates and calcareous plaques. The prognosis here depended largely upon the intensity of the gouty diathesis and the treatment should be principally constitutional. The local treatment was much the same as that recommended in other cases.

Dr. LUDGER CRUET (Paris) read a paper upon

The Choice of an Anæsthetic in Tooth Extraction.

After a very detailed review of all antiseptics, local and general, the following conclusions were arrived at. The employment of anæsthesia was absolutely legitimate for the extraction of teeth, with the view of abolishing pain. In such a case there was justification for using either general or local anæsthesia, but general anæsthesia should be reserved for difficult cases and multiple extractions. Chloroform or ether were the best anæsthetics, but there was nothing against the use of other substances with appropriate indications. Brief general anæsthesia in a difficult subject was better than local anæsthesia. Bromide of ethyl and chloride of methyl should be given in preference to nitrous oxide gas. Local anæsthesia was preferable in the vast majority of cases. Freezing alone was generally insufficient, but it might be employed to intensify the effect of an anæsthetic injected subcutaneously. The local anæsthetic for choice was hydrochlorate of cocaine.

Professor W. D. MILLER (Berlin) read a paper upon

The Present State of our Knowledge with regard to the Causation of Dental Caries.

There are, he said, two stages of destruction of the teeth during caries: (1) calcification of the enamel and (2) disappearance of the dentine; and under these two headings all the work done by previous writers up to the present time was carefully considered and reviewed.

HYGIENE AND EPIDEMIOLOGY.

A Precursor of Hygiene.—Professor Loeffler's Discoveries.

Though the sections as a rule have been but poorly attended an exception must be made in honour of the Section of Hygiene. Here there were moments when it was not easy to find a seat. It is true that only a small room was allotted to this section and that was a mistake. In many of the other sections members are prone to think that they have little or nothing to learn. They do not feel very desirous to hear someone they do not know read, probably so badly as to be unintelligible,

a paper that is too long and contains little that is new. Therefore unless the member expects to be called upon to read a paper himself or knows that the papers about to be read are really worth hearing he is likely to prefer sight-seeing, especially in so attractive a town as Lisbon. But those who attend the Section of Hygiene are often animated by other than mere professional motives. They have certain reforms, legislative measures, and other public matters to press forward. They attend the section, not merely because of the scientific interest of the papers and discussions but as a public duty. Therefore the attendance is larger and the members are, in many instances, very much in earnest. Nevertheless, even this section did not get to work on the opening day till long after 9 o'clock, though the hour of meeting was 8 30 A.M., and it was not really well attended before 10 A.M. The proceedings were opened on the morning of Friday, April 20th.

The President of the Section, Dr. RICARDO JORGE, general inspector of public health in Portugal, read an introductory address in which he pointed out that man in his ignorance was the principal creator of insanitary conditions and the principal obstacle to their removal. With Herbert Spencer, he thought there should be a physical morality and the respect of health should be accounted a public and a private virtue. To sin against the laws of health was as great an evil as to sin against the laws that protect property. Fortunately, a new social science was coming into existence. They no longer agreed with the optimist that everything was for the best in the best of all possible worlds, but rather with Goethe who sadly wrote that, as we live but once, we should make that life as durable and healthy as possible. Man was a social being, yet the worse evils arose from living in common, therefore it was the common business of all to remedy these evils It was this collective action for the preservation of health which constituted social hygiene. Great progress had already been achieved on these lines and he claimed that a Portuguese practitioner was among the earliest founders of modern hygiene. In 1756 Dr. Ribeiro Sanches wrote "A Treatise on the Preservation of the Health of the People," and urged that it was the duty of the State to enact laws to protect the health of the people. A medical man could not fight epidemics if the State did not endeavour to remove the cause. Dr. Ribeiro Sanches, in the eighteenth century, studied the influence of air, soil, and water on the health of populations and how they might be contaminated. He dealt with medical geography and foresaw the connexion between damp soil and insects with malarial and yellow fevers. He also dealt with the sanitation of dwellings in large towns, the necessity of wide streets and the quick removal of dirt. He proposed a control over dwellings by municipalities and even advocated sewers. He denounced the insanitary conditions of barracks, prisons, and hospitals, pleaded for cleanliness and fresh air, and wrote strongly against what he called "smothered air." He demanded that the clothes and dwellings of the sick should be purified and mentioned tuberculosis as one of the diseases where such precautions were necessary. Instead of quarantine he proposed a rigorous cleaning of the ships; and what is more surprising urged that ships should be fumigated till all the insects and rats were killed. When it is remembered that all these reforms were proposed 150 years ago by this Portuguese practitioner, and that now we are only beginning to realise them, the President concluded that it was more easy to introduce injurious than beneficent things.

The President asked permission to display a portrait of Dr. Ribeira Sanches, who was the author of the first book on public and preventive medicine, and begged leave to place the opening sitting of the section under the auspices of this glorious Portuguese ancestor.

The section now elected its honorary presidents, voted that a telegram of sympathy should be sent to Madame Curie and then called upon Professor LOEFFLER to make a communication on[1]

A New Method of Preventive Inoculation against Foot-and-Mouth Disease.

Some years ago Professor Loeffler prepared a preventive serum by injecting horses with increasing doses of a virulent lymph which is to be found in the vesicular eruptions of sick animals. With doses of from 10 to 20 cubic centimetres of this serum hogs and sheep are perfectly protected against infection for from four to six weeks. The duration of the immunity produced by the serum was found to be much shorter for the bovine species, because the serum of a horse, foreign to the body of a bullock, is eliminated in a comparatively short time. By treating bullocks cured of the illness in the same manner as horses with increasing doses of lymph Professor Loeffler obtained a preventive serum that was also excellent for the bovine species. But as it was not possible to cultivate artificially the infectious agents of the malady it was necessary to obtain the required lymph drop by drop from the infected animals. That is why the price of the serum is somewhat high. To immunise animals in as inexpensive a manner as possible it was necessary to find a method of active immunisation with an attenuated lymph. Last year Professor Loeffler published an account of such a method. A certain amount of virulent lymph mixed with a certain quantity of preventive serum was injected under the skin. The best results were obtained from this mixture of $\frac{1}{2}$th cubic centimetre of virulent lymph and half a cubic centimetre of preventive serum. Three weeks after the injection of the mixture the injected bullocks supported $\frac{1}{10}$th cubic centimetre of virulent lymph. 15 days later an injection of $\frac{1}{10}$th cubic centimetre of lymph and after another 15 days $\frac{1}{2}$th cubic centimetre of lymph was given. Then only had the animals acquired an immunity that enabled them to resist the disease itself. This method did not cost much but it was necessary to inject the animals four times to reach the required degree of immunity. These repeated injections gave rise to many practical difficulties. Therefore another effort was made to discover a method by which one single injection would suffice. Professor Loeffler succeeded in finding this method in the following manner. It was not possible to cultivate the infecting agent artificially; it had to be cultivated in the body of animals susceptible to the disease. The disease of the bullock is transmitted to the bullock by means of the lymph taken from the vesicles, then after three or four inoculations the lymph no longer produces any effect. The inoculated animal does not become ill. The result is the same if the inoculations are from hogs to hogs. The series of inoculations become more lengthy if bullocks and hogs are inoculated alternately. The only animal in the body of which the virus may be preserved is that of a sucking-pig aged about five or six weeks. In trying the lymph obtained from sucking-pigs on bullocks it was observed that the bullocks, which are really more susceptible to this disease than hogs, stood rather strong doses of this lymph—$\frac{1}{2}$th or even $\frac{1}{1}$th cubic centimetre—without contracting the disease. The lymph therefore was attenuated in its virulence so far as its action on the bovine species is concerned. Unfortunately, this attenuation was not of a stable nature but it became stable if cultivated in sucking pigs of the same race. After an injection of $\frac{1}{2}$th cubic centimetre of this lymph the bullocks obtained an immunity that was well marked and durable. To avoid any risk or danger of infection the animals inoculated with the lymph received at the same time an injection of a small quantity of preventive serum, from ten to 20 cubic centimetres, under the skin and in some other part of the body. This new method was tried on several dozen bullocks at the experimental station of the Institute of Hygiene at Greifswald. Apart from the practical consequences, the scientific importance of the experiments consists in that the infecting agent of one disease attacking two different kinds of animals can be attenuated in its virulence for the one kind of animal because it has been cultivated only in the other kind of animal. By artificial cultivation in the bodies of one sort of animal the agent adapts itself to that species and is rendered less likely to infect the other species. Thus it is possible to profit by this agent attenuated in the first species to make with it preventive inoculations in the second species, even though the latter is by nature much more susceptible to the disease than the first species. Thus we have here a certain analogy with vaccination. The infecting agent of small-pox is transmitted to the calf and is cultivated in the body of the calf. By this process it is so modified that it only produces in man a local pustule. That is why it is possible to make preventive inoculations in man against small-pox. There is an analogous relation between human and bovine tuberculosis. The bacillus of tuberculosis cultivated naturally and frequently in man loses its virulence for the bullock and the bacillus cultivated

[1] This is the account of the communication written by Professor Loeffler himself for the archives of the section which he very kindly lent to our Special Sanitary Commissioner, who reported this section for us, so that he might translate it into English.

constantly and naturally in the bullock loses its virulence for man. Thus we may profit by the human bacillus to make preventive inoculations in bullocks against the bovine bacillus, and *vice versâ* probably it will be possible to immunise man with the bovine bacillus against infection from the human bacillus. The important result of the new researches in regard to inoculations to prevent foot-and-mouth disease is then a fact verified experimentally. It is possible to obtain a vaccine by adapting artificially the agent of a disease attacking two species, cultivating for some time this agent in the body of one species and inoculating with it the other species.

Disinfection.

The next subject discussed was the report by Dr. GUILHERME ENNES, director of the disinfecting station at Lisbon. He urged that isolation without disinfection would fail in its purpose. But disinfection should not be intrusted to private business firms; it must be carried out under strict public control. Nor should private, charitable, and other institutions be allowed to instal on their premises disinfecting stoves without submitting them to inspection and only employing that which the Government recognised as efficacious. Such stoves should have self-registering thermometers that would show the degree of heat in the interior of the stove and how long that heat had been maintained during the operation of disinfecting.

At the conclusion of this report a few words were said as to the necessity of giving financial compensation to poor home workers—small laundresses, dressmakers, and others—whose business was often almost destroyed by the alarm caused when their premises were disinfected. Diseases would be concealed if there was a serious risk of the persons affected losing their means of livelihood. This was generally approved and the reporter explained that in Lisbon compensation was given when bedding was burnt or other objects were destroyed. It was agreed that a sanitary law to be effective must be thoroughly understood and approved by the mass of the people.

The section then adjourned.

SOME GENERAL CONSIDERATIONS AND THE FESTIVITIES OF THE WEEK.

(FROM OUR SPECIAL COMMISSIONER.)

Lisbon, April 27th.

The Congress is over and great credit rests with the Portuguese organisers and notably with the general secretary, Dr. Miguel Bombarda, who is evidently gifted with the genius of organisation. It is not so easy to see in what manner the foreign nations contributed to the success of the Congress. The foreign Governments certainly did their share in sending numerous official representatives who were distinguished by the gold braid with which the artistic silver Congress badge was suspended to their coats. There were also many who wore a silver braid and this testified that they were the delegates of faculties of medicine, schools, or learned societies. The ordinary member had a light blue-and-white ribbon for his badge and these are the colours of the town of Lisbon. As compared to other congresses the latter category of members were not as numerous and this greatly facilitated the work of organisation. But this raises the very important question of what these congresses are supposed to represent. For instance, the grand committee which allotted the Paris and Moscow prizes consisted of the Government representatives and of the presidents of the sections. Can these gentlemen be taken to represent the medical profession? This profession consists in the main of general practitioners, whereas the eminent and distinguished members of this committee were medical men who, for the most part, had very little to do with general practice. So long as the congresses are mere demonstrations of international interest and sympathy with the scientific studies of the nations represented the above considerations are not of much practical importance. But motions are now passed and efforts are made to influence legislature—not to any great extent as yet, but this will grow. Then it will be a matter of imperial necessity to deal with the question as to how votes should be taken and how those who govern these congresses are to be appointed. It is more especially the section dealing with sanitary matters and with the prevention of epidemics that touches most frequently on matters of medical politics or social legislature. This is precisely the one section which throughout was well attended and where the greatest number of motions were carried. Of course, this is quite natural. Hygiene supplies a scientific motive for legislation, and hygiene unsupported by legislation could not do much good. But if this is admitted, then it must also be admitted that it is necessary to see that opinions which are given out to the whole world in the form of motions should be endorsed by, and emanate from, truly competent and representative bodies. Again, in the hygiene section several sanitary engineers and other specialists on sanitation were admitted though they were not medical men. This is right enough, but an awkward question is opened up thereby. If sanitary engineers are to be admitted to the hygiene section of a medical congress, why should not any unqualified person whose work may be considered as ancillary to, or developmental of, any branch of medicine be eligible for membership. And once such a concession is made who is to distinguish in the crowd of unqualified individuals the man of science from the pretender?

CINTRA AND THE KING'S DINNER.

Looking back upon the busy week which has just elapsed and its attendant pleasures I must first regretfully explain that I was not able to join the numerous party that went to Cintra. The lavish hospitality and the magnificent gardens of Sir Francis Cook, Viscount Monserrat, came in for unstinted praise. It took place on the day of the London mail. But all accounts coincide in expressions of delight and admiration. There are also comical stories told of big medical men riding very small donkeys to reach the grounds that are some distance from the station.

On Saturday evening, April 21st, the King entertained at dinner some 200 guests. These were the delegates sent by the various governments to the Medical Congress and the members of the executive committee of the Congress. There were no speeches. It was a friendly gathering and demonstrated once more the keen interest the Royal Family has manifested in regard to the Congress. Indeed, I know personally that the King has carefully questioned different individuals who were in contact with members of the Congress so as to find out from independent sources whether the visitors to Portugal were pleased. Evidently the Royal Family is sincerely desirous that the Congress should produce a good impression on the numerous medical men who for the most part have seen Portugal for the first time in their lives and who may, on returning to their own country, give expression to their feelings on the subject.

THE NEW ANTI-TUBERCULOSIS DISPENSARY.

On Sunday, April 22nd, Congress did not sit, but the members were invited to visit the Anti-tuberculosis Dispensary in the morning. This institution is close to the water's edge, near the fish market, and in a very frequented part of the town. It is a beautiful white stone structure, looking more like a palace or a monumental museum than an out-patients' ward where a rough crowd of poor people may be expected to congregate. The object is to give gratuitous advice to all poor persons who are actually suffering from tuberculosis or who seem predisposed to this disease. There are to be morning and afternoon consultations. Seven medical men constitute the staff for this service. They will seek to classify the cases and while sending the more serious ones to special hospitals or sanatoriums will endeavour in other instances to organise preventive measures. The object is not merely medical treatment but investigation and material help. Money, better housing, and suitable food—these great preventative necessities—are to be supplied whenever the means for so doing can be obtained from various charitable funds and other resources. On the ground floor there are waiting-rooms for the outdoor patients and several consulting-rooms and operating rooms for minor operations, but there are no beds, so that in case of a more severe operation an ambulance would be required to take the patient either before or after the required operation, according to the nature of the case. Upstairs there is a place destined for a library, several committee rooms, and a large, handsomely furnished council chamber where some hundred persons could be seated, including special chairs for the King or other members of the Royal Family who, it is believed, will occasionally preside over meetings to be held here for the purpose of discussing administrative matters. Altogether, there is an air of great luxury and brightness about the place. Also, and with one very important and serious exception, much care has been shown to prevent contagion. All the angles are rounded off. The

walls are of white tiles or paint, all washable, as also are the floors. The cases to keep instruments or dressings, the chairs, the tables, and the furniture in general, are of the latest antiseptic and washable style. But to several of the wash-stands fixed to the walls I could find no syphon trap or any other sort of trap. Testing one of these apparently untrapped pipes with a match and with a moistened finger it did seem as if there was an up-draught. This seemed, therefore, as if the airs from the sewer were penetrating the consulting- and operating-rooms. The closets were trapped but not the small lead pipes for carrying away dirty or waste water. If these pipes were carried through the wall to empty in the open air over a gully it would not matter but I could find no such gullies. Certainly this is a matter that will brook no delay, and before patients are admitted to this new and otherwise admirable institution measures should be taken to see to the trapping of all the small pipes. All the other and far more expensive anti-septic precautions adopted may be rendered futile if sewer airs are to pass over these beautiful glass and enamelled shelves and furniture, and this without let or hindrance, both day and night. Perhaps, however, I am mistaken and some sort of trapping exists but out of sight. In that case it is a pity that it should be concealed, and such concealment is in absolute opposition to the principles on which this institution is founded. One of its principal objects is to teach poor people those rules of health by which the prevalence of tuberculosis may be diminished. One of the first of these laws is to breathe pure air and therefore to trap all pipes which, communicating with the sewers, may be the means, in fact, indeed, are sure to be the means, of introducing into dwellings sewer airs of a more or less dangerous nature. Therefore traps should not only be employed but so placed that everyone can see them. Thus they may serve as an object lesson in practical hygiene and give a sense of security to all who would thus be able to see that proper precautions had been taken.

THE GALA BULL FIGHT.

In the afternoon the members of the Congress enjoyed a truly Portuguese entertainment. With admirable order little tickets of different colours—blue, white, red, and yellow—had been distributed and gave admittance to steamers with flags of the corresponding colour. On board there were luncheon baskets awaiting the passengers, so that there was no struggling to reach a buffet and the unpleasant incidents that sometimes result. For two hours the passengers were able to enjoy the fresh air and scenery of the Tagus, which inland widens out into a lake. At the furthest end of this lake is the village or small town of Villa-Franca and here the Tagus resumes the dimensions of a river. On both banks there were guards of honours, consisting of peasants mounted on horses and armed with poles, some ten feet long, which they use to drive the cattle. Their picturesque and bright-coloured attire and martial attitude made a pretty sight. Salutes were fired in our honour and when we landed showers of roses were thrown upon us by the inhabitants who lined both sides of the streets. From almost every window there hung some beautiful silk curtains or counterpanes. Most of these were crimson or yellow damask, but some were of a rich cream silk reps most artistically embroidered with flowers of many but of subdued colours. This form of decoration imparts a luxurious aspect to the streets, and when I recalled the eye-scorching bunting displayed in England and purchased for a few pence per yard I could not help thinking that there was a good deal to be learnt even in a small Portuguese village. Then I was lost in wonderment how persons evidently of very modest means, to judge from the small and simple character of the houses or cottages in which they lived, could possibly afford to have such artistic and rich silks. To my disappointment, however, I was told that some of these beautiful silks had been lent for the occasion by wealthier people whose houses did not happen to be on the road along which the members of the Congress would pass. These persons desired to help in this manner to welcome their foreign visitors.

The bull-ring to which in triumphant procession we walked is a comparatively small and modest building but it had many thousand seats which were soon filled. The bull-fight was a very different matter from what is seen in Spain. Not only are the points of the bulls' horns sawn off but the stumps that remain are carefully padded. The horses also are ridden with consummate skill and every precaution is taken to prevent the bull touching them. Banderillas are used by the men on foot and on horseback and are planted in the neck of the bull, which irritates the bull but cannot be described as torture. Just as much skill is shown as in a Spanish bull-fight and there may be just as beautiful display of costumes, but there is no killing either of the bull or of the horses. Then there are other features, such as the game of the three horsemen, one of whom wears a rose which the other two endeavour to snatch away from him. Altogether it was an artistic display of fancy costumes, beautiful horses, excellent horsemanship, powerful majestic bulls, and of an enthusiastic, excitable, and happy crowd. The King and all the Royal family again manifested their sympathy for the Congress by honouring with their presence the gala bull-fight given in our honour.

THE GEOGRAPHICAL SOCIETY'S ENTERTAINMENT.

On Monday evening the Congress was entertained by the Geographical Society in the same great hall where the opening ceremony took place. The whole of the vast floor was occupied by members of the Congress and the two galleries by members of the general Lisbonese public. On the platform there was first the guards' band and after it had played some national music a number of men and girls from the northern province of Minho came and sang and danced in their national costumes. There was also some lantern slides giving views of the Portuguese colonies. These views were not well taken and the peasants' songs and dances were the most enjoyable part of the entertainment.

THE KING'S GARDEN PARTY.

On Tuesday evening the delegates from the various governments were received by the members of the Portuguese Government; but before this all the members of the Congress had been entertained by His Majesty King Carlos in the gardens of the Necessidades Palace. This is on the side of a hill. The original trees and bushes remain and here and there only have ornamental plants been added. A clearance for lawn tennis grounds constituted the receiving centre and here the King, the Queen, and the Queen Mother walked round and talked to all who came near, thus evincing interest in the Congress, its work, and its members. In different parts of the grounds there were buffets, some for tea and light refreshments, others for wines and more solid fare. The weather was splendid, with blue spotless sky and sunshine, showing off the uniforms and the ladies' dresses in the full brightness of their colours. It was a picturesque sight and gave opportunities for many pleasant conversations and friendly greetings.

THE RECEPTION AT THE TOWN HALL.

On Wednesday evening it was the turn of the municipal authorities to manifest in honour of the Congress. This they did at their own town-hall. On approaching this building, which possesses a most artistic and harmonious frontage, I was amazed by the vast crowd filling the square where the municipal buildings stand. On entering I was likewise surprised by the size of the State stairs and the beauty of their decoration. In the corners there were cascades of giant lilies; over the flat surfaces hung enormous garlands of roses, perhaps 20 feet in length and two to three feet in circumference. Truly it was easy to realise that we were in a land of flowers. Horse guards lined the stairs, so that what with flowers and uniforms but little could be seen of the walls. All round these central stairs there are a succession of saloons. At first I was astonished to find all the windows open and a large number of persons standing by them as if to get the fresh air. This, however, proved to be no newly conceived love of ventilation but the anticipation of a fire-brigade show. In due time the engines arrived and now I began to understand why there had been so great a crowd in the square and surrounding streets. This became all the more comprehensible when the fire escapes came up. With commendable rapidity they were raised to fifth- and sixth-floor windows and balconies. Then, to the delight of the crowd, the firemen ascended and insisted on rescuing people who were quite safe and comfortable and not at all disposed to take a perilous flight on a fireman's back down a wobbly ladder into the street five or six storeys below. These were the men who had won a contest in London. They are trained by M. Fernandez and, together with a brigade from Oporto, they attended some three years ago an international contest held in London when they carried off the prize. Later when the firemen had terminated their exercises some members of the Congress also desired to show their agility and wherever sufficient room could be found

there were couples dancing. There was a buffet but no speeches or drinking of toasts; in fact, no special form of reception. The municipality kept an open house, all members of the Congress were welcome, and I think I may say that they were all much impressed by the beauty of the scene and decorations. This was the last of the entertainments and on the morrow the Congress was to hold its final sitting.

THE ROYAL ACADEMY.

THOSE who enter the galleries of Burlington House hoping to find their attention arrested by important subject pictures ably painted by the leading artists of the day find themselves from year to year more liable to disappointment, and although in the exhibition now opening there will be observed many paintings of landscape admirably treated there will scarcely be noticed any among these to rank in the public esteem at all events with some which could be named of past seasons. Perhaps "Birnam Wood" (No. 246), by Mr. David Farquharson, not long an Associate of the Royal Academy but an artist of experience and sterling merit, should be esteemed as high as any. It shows a thinly wooded glade with dark tree trunks springing from a rocky soil, wreathed in the light mists that rise after the sun has sunk below the horizon. In portraiture, however, the Academy maintains as usual a high level, much as all will miss the hand of the late Mr. Charles Furze. In this class of work personal interest in the subject of the picture also attracts attention to it, and in 1906 the features of men of note are not lacking. Mr. J. S. Sargent, brilliant as ever, has not been altogether aided by the personality of his sitters, but his principal work is one of which the institution for which it has been painted should be justly proud and in which all our readers will be much interested. It is a portrait group (No. 257) painted for presentation to the Johns Hopkins University, Baltimore, and it shows Professor William Welch, Professor W. S. Halstead, Professor W. Osler, and Professor Howard Kelly grouped round a table. Their black silk gowns are relieved by the hoods of their degrees and the picture will long be remembered for its masterful treatment of sombre raiment and masculine character. The medical profession is not so largely represented on the walls as that of the law, whose members, especially when they have attained judicial rank, seem particularly given to being painted, but an admirable portrait of Sir Felix Semon (No. 37) by Professor von Herkomer hangs in the first room, not far from Mr. Sargent's picture of Lord Roberts. In the large gallery Professor Frank Clowes (No. 161) is to be seen, also on the line. He has been painted without those surroundings suggestive of his profession which some prefer, sitting on a bank in the open air with his golf clubs beside him and with a terrier lying across his knees. The portrait is that of his dog no less than of himself, as the name of the artist, Mr. Briton Riviere, R.A., will suggest. These are the principal medical portraits, but among the miniatures may be noticed (1149) Professor Robert William Reid of Aberdeen University, the name of the artist, Isabella E. Reid, suggesting that she is a lady not unfamiliar with the features which she has endowed with a character and vigour not always found in miniature painting. Mr. P. Campbell Smith (No. 1064), by Edith K. Ellis, is another good example of modern miniature work, although the ordinary everyday dress of an Englishman without the colour lent by uniform or robes smees hardly as well suited to miniature as to larger work.

Subject pictures, as has been said, are hardly so well represented as landscapes and it would be difficult in reviewing the whole exhibition in a brief note to select anything that is likely to become what is popularly known as "the picture of the year"; fortunately, however, we are only expected to look at the pictures with a medical eye and from a medical point of view. Mr. Abbey's "Columbus" (No. 143), with a flight of flamingoes flickering among the flags that surround him in his landing on the shores of America, seems hardly fitted for popularity, and Mr. F. Brangwyn's able work is not for the million. Many others whom we are accustomed to see repeat their usual subjects with variations but are none of them very insistent in their appeal to the eye. A picture which many will stand before, however, puzzling out its symbolism and discussing the not very recondite meaning of its details, is that of Mr. Sigismund Goetze) No. 710), to which he has given the title, "The Ever Open Door," with the explanatory quotation, "We brought nothing into this world and it is certain we can carry nothing out." The crowd entering the narrow portal of death, where an angel is extending a markedly cordial welcome to a Highlander fresh from his last battlefield, have abandoned in the foreground their crowns and their jewels, their palettes, and their scientific instruments which have won them fame on earth, their Parliamentary blue-books, and the other outward and visible signs of their earthly professions. Close to this heap of miscellaneous articles an infant, the only one who faces death with pleasure, sits smiling joyfully, and beyond it a mixed crowd, in which figure with many others a ballet girl and a cardinal, a schoolboy, a convict, and a Salvation lass, are divesting themselves not only of their finery but of all their clothes before passing the threshold. It is a picture which will naturally remind everyone of the same artist's work two years ago but is, perhaps, more thoughtfully imagined and less reminiscent of other attempts in the same direction. Below it, for it is above the line, hangs a picture entitled "Hush" (No. 712), by J. H. Lorimer, in which a lady bends over an infant asleep on a bed in a very airy and well-lighted room with a flock of pigeons on the window-sill. Mothers will perhaps think that if she composed the baby in an attitude more conducive to rest she would have a better chance of attaining her object, which is presumably that of prolonging his slumbers.

Of nude figures there do not seem to be quite so many as usual but among them are two graceful, lithe-limbed girls by Mr. H. S. Tuke, A.R.A. (No. 437), who are decidedly attractive. They have none of the flabbiness of the conventional undraped model and are a pleasant change from his usual bathing boys, well painted as these have always been. Perhaps the geological formation of the rocks against which one of them rests herself is left a little doubtful, but Cornish granite has varied tints, and it is upon herself and upon her companion seated on the ground that attention will be centred.

None should leave the Academy without visiting the sculpture, in which such marked advance has been shown in recent years, and those who inspect it will find, in spite of the inadequate accommodation afforded to it, that there is much to admire. The monument to Mr. and Mrs. Gladstone by Sir W. B. Richmond, R.A., of which a model is exhibited, is worthy of high praise as a dignified and impressive work. It is destined to be seen in marble in Hawarden Church, where the inscription will then be more readily legible if it is wrought in the same metal as the other decoration near it, instead of as now in gold.

MEDICINE AND THE LAW.

Claim against an Employer for Attendance upon a Workman.

IN the Bradford county-court an action was recently brought against a manufacturing firm for medical attendance upon a workman, and as the claim was disputed the facts are worth noting by medical practitioners who may be employed in similar circumstances. The plaintiff, Mr. G. H. Oliver, was summoned by telephone by the managing director of the works in question and found the patient, a boy, suffering from a fractured thigh. He suggested that the lad should be removed to the infirmary but the lad protested against being taken there, and, according to the plaintiff's evidence and that of the boy's father, the managing director said that if Mr. Oliver would undertake the case at the boy's home he would be responsible for the charges incurred. Acting on his belief that this was what the managing director in fact meant Mr. Oliver had the boy removed and afterwards attended him at his father's house, but the defendants contended in the county-court that all that had been promised on their behalf was to pay for the original attendance at the works and that the lad's father must bear the expense of everything subsequent to that. The county-court judge was of opinion that there had been a genuine misunderstanding and that neither the medical man nor the employers' managing director had made his meaning as clear as he should have done. He considered,

however, that having expressly sent for Mr. Oliver in the first instance the defendants should have made it perfectly clear that they would accept no further liability and he gave judgment for the plaintiff for the amount claimed—£6 17s. 6d. It has often been pointed out in THE LANCET that when a medical man is summoned to an accident case at a place where workmen are employed he should take care that the question of who is to be liable for his fees should not be left in doubt. In this instance, however, it is not easy to see how Mr. Oliver could have done more to elucidate the matter than he did. He advised the removal of the lad to the infirmary and apparently he also made a direct inquiry as to who would pay if he attended him at his home. The representative of the firm had called him in, so that so far as that occasion was concerned he could not have expected any question to be raised and he must have thought that it was plain to everyone that he would hardly have recommended the infirmary unless the circumstances of the patient had seemed to suggest a charitable institution rather than private attendance. The mistake of the managing director is difficult to account for, but the fact that an action became necessary in order to recover the fees shows how extremely explicit the undertaking to be answerable should be if subsequent dispute is to be avoided.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

Bath Urban District.—Dealing in his current annual report with the subject of pre-natal mortality Dr. W. H. Symons observes that notwithstanding Section 18 of the Births and Deaths Registration Act, 1874, infants who have been born alive are sometimes buried as having been still-born without any inquiry as to the cause of death. It seems, too, that the regulations of the Midwives Act to the effect that "in all cases where a registered medical practitioner is not in attendance the midwife shall, as soon as possible after the occurrence of the stillbirth, notify the same to the local supervising authority" are not strictly carried out in Bath, since Dr. Symons has only received eight stillbirth notifications since this Act came into force in April last, and as he thinks that midwives attend more than 50 per cent. of the births he assumes that something like 50 per cent. of the stillbirths would come to their knowledge. Probably this is a fair inference since the midwives will in the main attend the less careful classes. Dr. Symons, from a study of the local records, estimates that about 60 children are annually buried as stillborn in Bath and he thinks that all stillbirths should be registered. Referring to the subject of the sanatorium treatment of pulmonary tuberculosis Dr. Symons states that it is too early to draw conclusions as to the results of the open-air treatment at the Winsley Sanatorium which has been erected for the counties of Gloucestershire, Somersetshire, and Wilts. Eight cases have already occupied the two beds which are maintained at this institution by the corporation of Bath but, like most of the cases so far under treatment, these cases were not very suitable ones, as the number of applications for the beds have been too few to admit of selection.

Borough of Kingston-upon-Thames.—Mr. H. Beale Collins reports that since the attendances at school have been more closely looked after by the school attendance officers the number of cases of scabies has increased, a fact which he attributes to the circumstances that dirtier children have been brought into the schools. He adds that in 30 cases absence from school has been allowed and as some of these cases are absent for months at a time a large number of attendances have been lost. He suggests that if a nurse were appointed to look after these cases they might be cured in a relatively short space of time and in his opinion this same nurse might be used for helping the school teacher to discover cases of the disease in their early stages. 32 physically defective children were found in the schools during 1905 and separate class-rooms are being prepared for them. A special open-air school is suggested for certain cases of pulmonary tuberculosis. As regards vision 121 children were found grossly defective and unless provided with proper glasses they will lose a large portion of their educational facilities.

Bromsgrove Urban District.—Dr. H. Cameron Kidd has been led by a further experience to modify materially the views which he formerly held as regards the advantages of the isolation hospital and he has discovered that these institutions are not always without their drawbacks. In the hospital to which he specially refers there were during 1905 139 patients with only three deaths—a fact which, as he observes, speaks well for the success of the treatment practised. But Dr. Kidd adds that although there has been recently instituted at this hospital an arrangement by which convalescent patients are separated from those in an acute stage there have nevertheless been a number of children who have suffered from such complications as otorrhœa and rhinorrhœa with obstinate soreness of the lips and nostrils. He thinks "that these complications have such obvious connexion with the aggregation of cases in a confined space that I cannot deny that hospital conditions appear to have something to do with their causation." But Dr. Kidd tells us that the wards have not been overcrowded as they used to be in former times when, we infer from his comments, no such complications arose. Among the suggestions made by Dr. Kidd is the provision of the cellular system such as obtains at the Pasteur Institute in Paris, wherein when a patient is admitted, all the other patients are, notwithstanding the cells, inoculated against the disease most recently admitted, that is, of course, if the disease is one—such as diphtheria or small-pox—against which preventive inoculation can be practised. There is, we may add, already one such hospital in England. Dr. Kidd, however, regards such a provision as impracticable and he suggests that there shall be a differentiation among the notified cases, those where there is danger of infection at home being removed to hospital, others being treated in their homes. The diminution of hospital cases which would result would, Dr. Kidd thinks, enable the different blocks to be used for patients in different stages of the same disease. The selection of suitable cases should, he proposes, be left in the hands of the medical officer of health. As regards these observations, we may point out that the incidence of such complications as are here referred to varies materially from year to year, as will be seen by a reference to the annual reports of the Metropolitan Asylums Board, and it is not improbable that these variations also obtain in home-treated cases. But as to this point Dr. Kidd will doubtless have more to tell us next year, as he is probably giving this matter of the comparative incidence of otorrhœa and rhinorrhœa in home and hospital cases his attention. We may also add that where there is a prevalence of such cases in hospital it is always desirable to make sure that any syringes or other instruments used in the treatment of the cases are thoroughly disinfected—i.e., to see that the nurses are carrying out the instructions of the medical officer.

Teignmouth Urban District.—Dr. F. C. H. Piggott is to be congratulated on having at last prevailed upon the sanitary authorities of this district to provide an isolation hospital to which the medical practitioners of the town will not hesitate to send their patients, and commenting upon the absence of such provision in 1905 Dr. Piggott observes that inability to isolate enteric fever "undoubtedly contributed to the issue of the solitary fatal case whose surroundings at home were altogether unfavourable." We gather from Dr. Piggott's report that the Devonshire county council, after holding a local inquiry in 1904 as to the desirability of declaring the whole county a hospital district for the purpose of dealing with pulmonary tuberculosis, came to the conclusion that it would not be justified in making such an order. It is only by making an order such as this that a county council is enabled to erect, or to contribute to the erection of, sanatoriums for tuberculosis.

Borough of Eastbourne.—Dr. W. G. Willoughby, who has been instrumental in bringing about the removal of 94·3 per cent. of the total notified cases of scarlet fever, diphtheria, and enteric fever, has no doubts as to the advantages of an isolation hospital and he observes that "the continued popularity of the sanatorium is very gratifying and is a great factor in the prevention of the spread of infectious disease." He regards the maintenance of a popular infectious diseases hospital as an essential provision, most of all in a health resort. In suggesting the provision of a sanatorium for consumption Dr. Willoughby thinks that admission thereto should be limited to ratepayers of some years' standing, since it would be most inadvisable to attract consumptive patients to Eastbourne.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 9435 births and 5080 deaths were registered in the week ending April 28th. The annual rate of mortality in these towns, which had been 17·0, 17·1, and 17·3 per 1000 in the three preceding weeks, declined last week to 16·7; thus the mean rate during the first four weeks of the current quarter was equal to 17·0 in the 76 towns, while in London it was 17·7. The lowest death-rates in the 76 towns during the week were 7·7 in Walsall, 7·9 in Burton-upon-Trent, 8·3 in Wolverhampton, and 8·8 in East Ham; the rates in the other towns ranged upwards to 21·1 in Oldham, 22·3 in Birmingham, 22·8 in Yarmouth and in Hanley, and 23·4 in Liverpool. The 5080 deaths in the 76 towns showed a decline of 170 from the number in the previous week and included 483 which were referred to the principal infectious diseases, against 518 and 519 in the two preceding weeks; of these, 199 resulted from measles, 133 from whooping-cough, 52 from diarrhœa, 46 from diphtheria, 35 from scarlet fever, 18 from "fever" (principally enteric), and not one from small-pox. The deaths from these diseases were equal to an annual rate of 1·6 per 1000 in the 76 towns and to 1·7 in London. No death from any of these infectious diseases was registered last week in Northampton, Ipswich, Norwich, Stockport, Rochdale, and in eight other towns, while they caused the highest death-rates in Bristol, Middlesbrough, Liverpool, Bury, and Yarmouth. The highest death-rates from measles occurred in Bury and Yarmouth, in each of which towns this disease caused five deaths; from whooping-cough in West Bromwich, Warrington, and Wallasey; and from diarrhœa in Oldham. Diphtheria caused three deaths in Walthamstow and scarlet fever three in Tottenham. "Fever" showed no marked fatality in any of the large towns. The number of small-pox cases remaining under treatment in the Metropolitan Asylums Hospitals at the end of last week were but six, no new case having been admitted during the week. The number of scarlet fever cases under treatment in these hospitals and in the London Fever Hospital on Saturday, April 28th, was 2240, showing an increase of 15 upon the declining numbers in recent weeks; 314 new cases were admitted during the week under notice, showing a further increase upon the 270 and 288 cases admitted in the two preceding weeks. The deaths referred in London to pneumonia and other diseases of the respiratory organs, which had been 332, 357, and 399 in the three preceding weeks, declined last week to 361, but exceeded by 72 the corrected average for the corresponding week in the four preceding years, 1902–05. The causes of 50, or rather less than 1 per cent., of the deaths registered during the week in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Nottingham, Salford, Leeds, Newcastle-upon-Tyne, and in 50 other large towns, whereas the proportion of uncertified deaths showed a considerable excess in Birmingham, Liverpool, St. Helens, Rochdale, Burnley, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 19·4, 19·1, and 17·6 per 1000 in the three preceding weeks, rose again to 18·4 during the week ending April 28th, and exceeded by 1·7 the mean rate during the same week in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·6 and 16·6 in Leith and Perth, to 19·0 in Dundee, 21·4 in Greenock, and 23·4 in Paisley. The 631 deaths in these eight towns included 24 which were referred to whooping-cough, 20 to measles, 11 to diarrhœa, four to diphtheria, three to scarlet fever, and not one either to small-pox or to "fever." In all, 62 deaths resulted from these principal infectious diseases during the week, against 54 and 53 in the two preceding weeks. These 62 deaths were equal to an annual rate of 1·8 per 1000, which exceeded by 0·2 the mean rate during the week from the same diseases in the 76 large English towns. The 24 fatal cases of whooping-cough in the eight towns showed an increase of ten upon the number in the previous week and included 13 in Glasgow, four in Dundee, and two both in Edinburgh and Leith. The 20 deaths from measles exceeded the number in the previous week by five, including 12 in Glasgow and four in Edinburgh. Of the 11 deaths referred to diarrhœa five occurred in Glasgow, three in Greenock, and two in Edinburgh. The four fatal cases of diphtheria included three in Glasgow and one in Paisley; and all the three deaths from scarlet fever were recorded in Edinburgh. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 170 and 140 in the two previous weeks, further declined last week to 135, but exceeded by 14 the number referred to these diseases in the corresponding week of last year. The causes of 19, or rather more than 3 per cent., of the deaths registered in the eight towns during the week were not certified, the proportion of uncertified deaths in the 76 English towns being rather less than 1 per cent.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 21·1, 23·4, and 28·1 per 1000 in the three preceding weeks, declined to 22·4 during the week ending April 28th. During the first four weeks of the current quarter the death-rate in the city averaged 23·8 per 1000, against 17·7 in London and 19·2 in Edinburgh. The 163 deaths of persons belonging to Dublin registered during the week under notice showed, however, a decline of 41 from the high number in the previous week; they included four which were referred to diarrhœa, two to whooping-cough, two to diphtheria, one each to measles and "fever," and not one either to scarlet fever or small-pox. The ten deaths from these principal infectious diseases were equal to an annual rate of 1·4 per 1000, the rate from these diseases in the same week being 1·7 in London and in Edinburgh. The deaths referred to diarrhœa and diphtheria in Dublin exceeded the numbers in recent weeks. The 163 deaths included 25 of infants under one year of age and 51 of persons aged upwards of 60 years; the deaths of elderly persons showed a marked decline from the number returned in the previous week. Two inquest cases and two deaths from violence were registered; and 66, or more than 40 per cent., of the deaths registered were recorded in public institutions. The causes of five, or more than 3 per cent., of the deaths were not certified either by a registered medical practitioner or by a coroner.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Fleet Surgeon Graham Egerton Kennedy has been placed on the Retired List at his own request (dated April 27th, 1906).

The following appointments are notified:—Fleet Surgeons: J. H. Stenhouse to the *Queen*, on recommissioning; L. Bidwell to the *Aboukir*; and J. L. Thomas to the *President*, for three months' course at West London Hospital. Surgeons: G. M. O. Richards to the *Exmouth* and E. R. L. Thomas to the *Victory*, for R.N. Barracks.

ROYAL ARMY MEDICAL CORPS.

Major T. C. McCulloch joins the London District. Captain R. F. M. Fawcett is granted leave of absence to June 12th next, with permission to travel in Canada. Captain H. E. Howley and Captain J. G. Foster are appointed for duty at Belfast.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Captain Thomas Holt to be Surgeon-Major (dated April 7th, 1906).

ROYAL ARMY MEDICAL CORPS (MILITIA).

Surgeon-Captain Samuel Macfarlane Sloan, Army Medical Reserve of Officers (late Captain, Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers)), to be Captain (dated March 15th, 1906); Supernumerary Lieutenant (Honorary Lieutenant in the Army) G. Lane to be Captain, remaining seconded (dated March 30th, 1906).

VOLUNTEER CORPS.

Rifle: 4th Volunteer Battalion the Royal Fusiliers (City of London Regiment): Supernumerary Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel W. D. Waterhouse resigns his appointment of Brigade-Surgeon-Lieutenant-Colonel (Senior Medical Officer), 2nd London Volunteer Infantry Brigade (dated April 1st, 1906). 4th Volunteer

Battalion the Norfolk Regiment: Surgeon-Captain C. A. O. Owens (Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Norfolk Volunteer Infantry Brigade) to be Major (dated August 1st, 1902). 5th (The Hay Tor) Volunteer Battalion the Devonshire Regiment: Walter Fitzpatrick to be Surgeon-Lieutenant (dated April 28th, 1905). 1st Volunteer Battalion the Leicestershire Regiment: Surgeon-Lieutenant B. Stracey resigns his commission (dated April 28th, 1906). 4th Volunteer Battalion the Cameronians (Scottish Rifles): Alexander Bankier Sloan to be Surgeon-Lieutenant (dated April 28th, 1906). 2nd Volunteer Battalion the Queen's Own (Royal West Kent Regiment): Surgeon-Lieutenant-Colonel H. W. Roberts is granted the honorary rank of Surgeon-Colonel (dated April 28th, 1906). 14th Middlesex (Inns of Court) Volunteer Rifle Corps: Surgeon-Major H. M. Ramsay resigns his commission (dated April 9th, 1906).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

Highland Light Infantry Bearer Company: James Alexander Hamilton Aitken to be Lieutenant (dated April 28th, 1906). 2nd London Bearer Company: Captain J. N. Brown is appointed Brigade-Surgeon-Lieutenant-Colonel whilst employed as Senior Medical Officer of the 2nd London Volunteer Infantry Brigade (dated April 1st, 1906). Worcester and Warwick Bearer Company: George William Craig to be Lieutenant (dated April 28th, 1906).

THE VOLUNTEER OFFICERS' DECORATION.

The King has conferred the Volunteer Officers' Decoration upon the undermentioned officers of the Volunteer Force, who have been duly recommended for the same under the terms of the Royal Warrant, dated July 25th, 1892:—*London District: Rifle:* 20th Middlesex (Artists') Volunteer Rifle Corps: Surgeon-Captain and Honorary Surgeon-Major Charles Sempill de Segundo. *Northern Command: Rifle:* 4th Volunteer Battalion the Manchester Regiment: Surgeon-Lieutenant (Honorary Major, Volunteers) John Crawhall Nichol. *Scottish Command: Artillery:* 1st Renfrew and Dumbartonshire Royal Garrison Artillery (Volunteers): Surgeon-Lieutenant-Colonel William Robert Sewell. *Southern Command: Artillery:* 1st Devonshire Royal Garrison Artillery (Volunteers): Surgeon-Lieutenant George Clement Searle. *Western Command: Rifle:* 2nd Volunteer Battalion the South Staffordshire Regiment: Surgeon-Major James Scott Wilson. 1st Volunteer Battalion the King's (Shropshire Light Infantry): Surgeon-Major and Honorary Surgeon-Lieutenant-Colonel William Herbert Packer.

THE VOLUNTEER AMBULANCE SCHOOL OF INSTRUCTION.

The annual dinner of the staff and members of the Volunteer Ambulance School of Instruction will take place at the Trocadero Restaurant on Thursday, May 17th (the anniversary of the relief of Mafeking), at 7.45 P.M. Surgeon-General A. H. Keogh, C.B., Director-General of the Army Medical Department, will be the guest of the school. The following have also accepted invitations to be present: Colonel A. T. Sloggett, C.M.G., R.A.M.C., principal medical officer, London District; Surgeon-Colonel J. Cantlie, London Companies, R.A.M.C. (Vols.); Brigade-Surgeon-Lieutenant-Colonel C. E. Harrison, Brigade of Guards; Major H. C. Thurston, C.M.G., R.A.M.C., War Office; Mr. Mayo Robson, Dr. James Galloway, and Dr. A. Eichholz. During dinner the string band of the 1st Cadet Battalion Royal Fusiliers will perform a selection of music by permission of Lieutenant-Colonel Sheffield, commanding.

A MEDICAL COMMISSIONER ATTACKED WITH SLEEPING SICKNESS.

A Reuter's telegram, dated Bukobe (Victoria Nyanza), April 7th, states that it was rumoured at all the points on Lake Victoria that one of the Sleeping Sickness Commissioners sent to Uganda by the Royal Society had contracted the disease whilst engaged in carrying out investigations concerning its ravages at Entebbe, the Government headquarters. The reports are confirmed and it is learned that the Commissioners, Lieutenant Gray, R.A.M.C., and Lieutenant Forbes M. G. Tulloch, R.A.M.C., have left for England. At the end of last month an official telegram was received in London stating that trypanosomes had been found in Lieutenant Tulloch's blood and that as soon as he was well enough he would leave for England. Lieutenant Gray, who was due to leave Uganda on leave of absence at about this time, would, doubtless, accompany Lieutenant Tulloch to England.

DEATHS IN THE SERVICES.

Surgeon-Major Francis Henry Plumptre, I.M.S. (retired), at his residence, Newton Abbot, Devon, on April 17th, aged 78 years. The deceased, who was formerly in the Bombay army, had served in the Persian campaign of 1856–57 and also in the Abyssinian campaign of 1867–68. After his retirement he resided in Newton Abbot and was on the commission of the peace for the county of Devon.

Correspondence.

"Audi alteram partem."

THE COMPULSORY NOTIFICATION OF PULMONARY TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—It is an undoubted opprobrium of medical science that so little is done for its progress compared with the work accomplished in other branches of nature knowledge, and even in surgery, her sister study. The budding physician starts with enthusiastic notions of worlds to conquer and for a time is completely devoted to his new mistress. But as the necessity of making his living impresses itself more and more on his mind, and particularly when what Sir James Paget called in his day the guinea trap appeals to his pockets, he forgets his first fancy.

The cure for this unfortunate condition of matters is the endowment by the State of medical research, which surely with the advance of civilisation must by-and-by become an accomplished fact. Meantime, all honour to those who, Hunter-like, plod on the path of progress, placing a cairn here, making a way there, cheerfully and unwearyedly, amidst, alas, too little encouragement. In this connexion I venture to single out two names—those of Jonathan Hutchinson and Byrom Bramwell. Consider the almost Herculean efforts of those two men and the very small recognition of their undenying efforts by the profession at large. That wonderful journal the *Archives of Surgery* has ceased to exist and I fear that *Clinical Studies* does not receive one-tenth part of the support the publication deserves. It costs little and it is worth its weight in gold. My thoughts have taken this turn in connexion with Dr. Bramwell's *Clinical Studies* for April. While giving him unstinted praise for the constant flow of the most interesting kind of matter, he will, I trust, pardon me if I seem to question his great authority and experience. He appeals to medical practitioners to imitate his example and to urge that phthisis should be compulsorily notified by law. I humbly beg to demur to this dictum, and without entering on the wide field of casuistry involved in forcing an individual to place himself voluntarily as a patient in a doctor's hands in a position of *confidence*, to make that doctor reveal what he has got to know in this confidential relation, yet I may be allowed to advance what I take to be some plain objections against the compulsory legal injunction aimed at.

The first is the terrible infliction of labeling any young man or young woman *openly* as a leper to be shunned. Take the kitchenmaid he mentions as the subject of consumption as an example. She was known to be phthisical, I gather, nearly a year before she appeared at the Edinburgh Infirmary a second time. Dr. Bramwell would have some months before certified her as dangerous to others had the law compelled him to do so. But what was the poor girl to do? She must live. She would have been condemned to go out to the streets. It seems to me better that she should die. The public must not shut its eyes to hard facts. With compulsory notification, or rather before we get compulsory notification, there must be the necessary asylums for those so certified.

So much for that objection. The second is that we shall drive every working man and woman straight into the hands of the quack, and they are rather too ready to follow that alternative as it is. But supposing an early case does come under the notice of a struggling young doctor and if sanatoriums are to do any real good this is the stage when notification is of the greatest value. Is he, if he can help—that is, if there be any doubts in his mind of the nature of the case—and there are often, very often, many doubts—is he to lose his patient and very likely the patient's connexion by proclaiming to the world, "Here is a leper!" I doubt very much whether we are not asking more than human nature will give. Is it not likely that he will salve his conscience by the chances of a diagnostic mistake and *not* notify the

case at all until, perhaps, it gets so bad that it matters little to him or to his patient whether he does notify or not.

No, Sirs, it will be time enough to enforce notification when the necessary sanatoriums all over the country are ready—and that is a very big job—and not sooner. Long before any kind of compulsory notification was heard of for fevers, there were fever wards and fever hospitals in most populous places. The public has to be *educated*, and this step in the path, as I readily allow, of genuine sanitary progress must come, as everything natural and proper comes, by the laws of evolution and needs much time and much consideration for its complete development.

I am, Sirs, yours faithfully,

W. BRUCE,

April 30th, 1906. Medical Officer of Health of Ross and Cromarty.

THE RECTAL INJECTION OF ANTI-STREPTOCOCCIC SERUM.

To the Editors of THE LANCET.

SIRS,—It was with great interest that I read Dr. Nathan Raw's paper on the value of rectal injections of anti-streptococcic serum in ulcerative endocarditis[1] as this week a paper was read by Dr. W. Soltau Fenwick and myself before the Royal Medical and Chirurgical Society on the rectal injection of the same serum in gonorrhœal infections and some cases of purpura hæmorrhagica.[2] The administration of various sera by rectal injection has been practised by us at the London Temperance Hospital during the past six years and two years ago you were good enough to publish a short letter by me on its use. Serum appears to have precisely the same effect when introduced per rectum as if injected subcutaneously, and its action seems equally rapid, while the danger of spreading inflammations and local abscesses at the site of injection is removed and the patient does not look upon the injection in the light of an operation.

I am, Sirs, yours faithfully,

J. PORTER PARKINSON.

Wimpole-street, W., April 28th, 1906.

IN PRAISE OF RUM AND MILK.

To the Editors of THE LANCET.

SIRS,—I was very pleased to read Dr. Francis T. Bond's letter on the above subject. I have prescribed rum and milk in pulmonary complaints with very gratifying results for about 25 years. I have always found good sound rum better assimilated than any other spirit and it seems to combine well with milk, especially separated milk.

I am, Sirs, yours faithfully,

Manchester-square, W., April 28th, 1906. THOMAS DUTTON.

PASTEURISED MILK AND INFANT FEEDING.

To the Editors of THE LANCET.

SIRS,—It may not be known to many of your readers that several of the large dairy companies in London are supplying pasteurised milk to all their customers without any indication that the milk has been so treated. This fact was brought to my knowledge in the following manner: At a children's hospital in London the medical staff decided to use pure fresh milk, unchanged by heat, preservatives, or otherwise, for the in-patients. Extra precautions were taken so as to maintain the purity and freshness of the milk which was to be supplied in sealed and sterilised bottles, and was to be kept on ice. A large dairy company undertook to supply such milk, and did so for about 18 months. At the end of that time it was accidentally discovered that the milk for about 12 months had been pasteurised at the dairy. The company when taxed with this breach of contract, expressed regret but said that it had acted on high medical authority and that pasteurised milk was really safer for infants than milk not so treated. Into this question the medical staff did not enter but proceeded to secure untreated milk from another source. This action on the part of the dairy companies is one of considerable public importance. In the first place, the pasteurising of the milk is not undertaken by them for the benefit of the infant population but for the purpose of protecting themselves from spreading typhoid fever or other disease through contaminated milk, with subsequent legal proceedings and heavy damages. They may or they may not be justified in taking this precaution, but their customers are at least entitled to know the fact that the milk has been pasteurised. What is cows' milk? This is a difficult question to answer, but it is certainly inadvisable to allow the dairy companies to plead in the future "the custom of the trade" in selling pasteurised milk when fresh cows' milk is ordered. If pasteurised milk is to continue to be sold it ought to be labelled as such, just as condensed and "humanised" milks are.

Again, the health of the children may be seriously affected by this action of the dairy companies. At present, and largely owing to medical teaching, it is the custom in many households to boil the milk on delivery. If the milk is first pasteurised by the seller and then boiled by the purchaser, it will be a poor, devitalised sort of food which eventually reaches the infant, and anæmia and scurvy may be expected to follow. These are the results which one would anticipate on theoretical grounds, and practical evidence is forthcoming as follows: Dr. W. S. Colman[1] relates that a short time ago there was an epidemic of infantile scurvy among children in Berlin supplied with pasteurised milk from an institution, but it was found to be confined to children whose parents, as an additional precaution, boiled the pasteurised milk for some time, after it was delivered to the house. More recently Dr. J. A. Coutts[2] has recorded three cases of scurvy at the East London Hospital for which the patients were *ordered* fresh cows' milk and were further treated in the usual way with raw meat-juice, scraped potato, and lemon-juice. In none of the cases did the usual speedy resolution of the subperiosteal clot take place. "That three consecutive cases of scurvy should take this extraordinary course led to an inquiry and it was discovered that for several months the dairy company to the hospital had been supplying pasteurised instead of fresh milk, without the hospital authorities being adequately informed of the change. On the substitution of fresh for pasteurised milk each infant began to improve." These facts speak for themselves and would seem to justify the anticipation that injury to the health of the children and aggravation of their diseases will result if this action of the dairy companies is allowed to continue. More especially will the danger be present if the public and the profession are kept in ignorance of the fact that the milk is being pasteurised.

I am, Sirs, yours faithfully,

April 30th, 1906. G. A. SUTHERLAND.

100 CONSECUTIVE CASES OF MEASLES WITHOUT CHRONIC MIDDLE-EAR DISEASE.

To the Editors of THE LANCET.

SIRS,—Within the last 12 months I kept notes of the first 100 cases of measles which I attended during an epidemic and amongst this number I had not a single case of chronic middle-ear disease. At the most I had one or two cases of earache which soon got well without discharge of any kind. Although I have no actual figures to prove my contention I feel sure that 20 years ago it would not have been possible to attend 100 consecutive cases of measles without at the same time having several cases of "running ears." When I began practice 14 years ago it was common to find on asking the cause of deafness or of purulent ear disease to be told in an off-hand manner, as if it was a matter of course, that the mischief had existed since the patient had had measles. Within recent years I have found that measles is not so often given as a cause of this troublesome affection but in order to prove or disprove the correctness of my impressions I made the observations now recorded. That the epidemic was not particularly mild is shown by the facts as follows. The deaths numbered four, two being due to broncho pneumonia; one was helped by the teething process and one by whooping-cough, and all occurred in children under 18 months. Other notable points are: two out of the 100 were adults, and they had not had the disease before, six had had measles previously, and one or two had had more than one attack. "Pronounced"

[1] THE LANCET, April 21st, 1906, p. 1103.
[2] THE LANCET, May 5th, p. 1244.

[1] The Practitioner, October, 1905, p. 433.
[2] West London Medical Journal, April, 1906, p. 82.

broncho-pneumonia was the commonest complication. Three had well-marked laryngitis—one of these began with laryngitis as the first symptom of the disease and one had subsequent laryngeal paralysis (a girl, aged six years). The majority of the patients were under five years of age and belonged to the working-class section of the community.

One may well ask, what is the reason of this great improvement in results as regards the middle ear? I believe it is due (1) to a rise in the standard of general cleanliness amongst the great body of the people; and (2) to a better appreciation of the laws of hygiene as therapeutic agents amongst the members of the medical profession. These laws I have tried to interpret and to practise as follows: 1. To keep the rooms comfortably cool and as fresh as possible, as opposed to the sweltering heat of former days. 2. By attention to the patient's skin; frequent sponging down. Changing the patient's dress as often as necessary. Wrapping the child in a sheet with a blanket outside instead of the sweat-laden blanket in which the poor patient used to be invariably wrapped. 3. By allowing the patient plenty of cold water, soda water, lemonade, or other cool fluid of a similar kind in the early days of the disease. The food to be diluted milk. Not forcing solid food against the wish of the patient. By adopting this line the pharynx and naso-pharynx are kept sweet and hence the chances of mischief extending along the Eustachian tube to the middle ear are greatly reduced. Tact is necessary often to get these orders carried out, especially if there is a grandmother in the question. Medically I give one-twentieth of a grain of tartrated antimony along with half a fluid drachm of solution of ammonia and the same of simple syrup three or four times a day to still further keep the skin and kidneys active. When the cough is particularly troublesome I add to the foregoing one or two minims of tincture of opium according to age. Ordinarily I leave the cough to take care of itself.

I do not believe measles has lost its virulence and if patients, generally speaking, were placed under the foul conditions of former days chronic affections of the middle ear would be as frequently met with as of yore.

I am, Sirs, yours faithfully,

Leeds, April 26th, 1906. GORDON SHARP.

THE BRITISH DENTAL ASSOCIATION.

To the Editors of THE LANCET.

SIRS,—Will you kindly permit me through your columns to apply for the loan of specimens—microscopical sections, photographs, or skiagrams—of odontomes and such tumours as may be included when this term is used in its widest sense? The loan of specimens from so many collections, both public and private, has been promised us that we are endeavouring to make this collection as complete as possible, and by the aid of medical men who have been fortunate enough to obtain specimens of these tumours we hope we may add to our museum. The museum is to be held in connexion with the annual meeting of the British Dental Association which takes place in London at the Examination Hall of the Royal College of Surgeons on May 17th, 18th, and 19th next. Will those who possess specimens be good enough to communicate with me at the address given below?

I am, Sirs, yours faithfully,

W. W. JAMES,
Honorary Secretary, Museum Committee.

22, Wimpole-street, W., April 30th, 1906.

MEDICAL AND DENTAL DEFENCE UNION OF SCOTLAND, LIMITED: PURVES *v.* CARSWELL AND GILCHRIST.

To the Editors of THE LANCET.

SIRS,—In sending the annual report of the union to non-members a note was inclosed stating that the defence in the above actions was conducted by this union. In view of the vital importance of the issue to the medical profession generally the council, after due consideration, decided to give the defenders the use of the name and organisation of the union, but unfortunately a misconception seems to have arisen as regards the liability of this union for the costs. Mr. John Carswell and Dr. Marion Gilchrist not being members of the union when the matter occurred out of which the action arose, were therefore excluded from the privileges of membership in respect of that matter and have to pay the entire costs of the action, amounting to fully £900. As a misinterpretation of the note accompanying the report is apparently checking the flow of subscriptions to the Carswell and Gilchrist Fund the union desires by publishing this explanation to second the efforts of the special committee in soliciting contributions, which should be sent to Dr. W. G. Dun, 15, Royal crescent, Glasgow, W.

We are, Sirs, yours faithfully,

ROBERT W. FORREST, M.D. Glasg., Chairman.
WILLIAM YOUNG, Secretary.

108, West George-street, Glasgow, April, 1906.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

THE summer term commenced on April 23rd and the students seem to have settled down to steady hard work at once. This is perhaps due to the fact that the summer term is short and that many of the University examinations take place during the latter half of June. The Principal, Sir Oliver Lodge, has returned after his long rest. His holiday appears to have had very beneficial effects, for he looks strong and well. It is pleasant to see his big form and cheery, purposeful face about the place again, for he seems to diffuse encouragement and energy into everything which is under his charge.—It is becoming the custom in the Medical School for one or more members of the staff to deliver during this session short courses of lectures to which practitioners in the city and surrounding district and the students of the University are invited. The lectures are delivered on Thursday afternoons at 4 P.M. in the medical theatre, as has been already announced in THE LANCET. They were commenced on April 26th by Professor J. T. J. Morrison who is delivering a course of three lectures on the Legal and Social Relations of English Medicine, Past and Present, and they will be continued by Professor Robert Saundby who, on June 7th, commences a course of three lectures on Medical Ethics. On May 17th and May 24th Dr. C. E. Purslow, who is Ingleby lecturer for the year, will lecture on the Management of a case of Labour. The Ingleby lectures are also open both to practitioners and students. Professor Morrison's lectures have been extremely interesting, for by examining old records and ancient books he has been able to place before his audience in a most attractive manner an account of the history of the practice of medicine and surgery in this country, tracing it from its first beginnings in the hands of the priesthood to its transference to the laity and showing how gradually, at various times, the practitioners have attempted to consolidate their powers and privileges. Those of us who have but little time for looking into old records are deeply grateful to Professor Morrison for the glimpse he has given us of many past events associated with the history of the growth of our profession.—The new pathological department was not in a sufficiently advanced state to be opened at the beginning of the session and I understand that there will be no formal opening ceremony. Work will probably be commenced in the new buildings in about three weeks or a month. In future the pathological department will do much more work for the health department of the city than it has hitherto undertaken. This increase of work will necessitate the appointment of an additional assistant who will have to devote himself chiefly to public health work.

The Women's Hospital.

There is much cause for congratulation and a little for regret in association with the annual report of the Women's Hospital. The statistics for the year show that the total number of cases treated was 17,656, or 993 less than the previous year, the diminution in number being accounted for by the fact that the out-patient department was closed last August for alterations and additions. The number of in-patients treated was 492, an increase of 13 on the previous year. The most satisfactory parts of the report are those dealing with the new hospital which was opened in September last and the account of the mortality-rate after abdominal section. The new buildings and equipment have added greatly to the efficiency of the arrangements of the hospital and the death-rate in 275 cases of abdominal section was only 2·1 per cent. In the previous year the death-rate was 2·3 per cent., and the average rate since the founding

of the hospital in 1904 is 5·7 per cent. The rate for the past year compares very well with that of other similar institutions. The main cause for regret in the report was the statement regarding finances. The new hospital was only open for three months during 1905 and the ordinary income and expenditure account showed an adverse balance of £1500. It follows, therefore, either that some enlarged source of annual income must be attained or that the work of the hospital must be crippled. The subscription list only amounts to £1000, a strangely small amount from a city with so many wealthy inhabitants to such an important hospital, and it is certain that the annual income must be increased by £1000 if the work is to be continued on its present scale. The hospital is to receive a legacy of £308 under the will of the late Mrs. Hannah Pullom, who left the residue of her property to the institution.

Tree Planting in the Black Country.

The Midland Reafforesting Association has been at work for three years and the results it has attained have been most encouraging. Its members three years ago were 50 in number; they are now 250 and many people who scoffed at the idea of success are becoming convinced of their error. Through the agency of the association 70,630 trees have been planted on 43 acres of land. Since last year 37 acres have been planted and of these 34 acres were land at Moorcroft near Moxley, belonging to the South Staffordshire Joint Small-pox Hospital Board. The plantation thus established lies to the north of the Great Western Railway and it will replace a black patch, which was in full view of travellers, by a verdant grove of trees, for the trees, which were examined a short time ago, seem to be establishing themselves well. The corporation of Wednesbury needs a park extension and in order to provide it the association has planted 2000 trees on two acres of pit-waste at King's Hill. No special soil is used for planting purposes, for it is found that a mixture of the burnt ash of the mounds with the blue clay, or "church," which is found upon them makes a satisfactory soil. The chief difficulty, however, in establishing plantations on the bare mounds of ash and waste is not the soil but the impurity of the atmosphere. There is reason to believe, however, that the atmosphere is becoming less impure and it is hoped that in future unnecessary emissions from forges and furnaces will be abated. Smoke alone is not so great an enemy and Dudley Castle Hill is now thickly covered with trees though furnaces abound in the neighbourhood. In addition to other work the association has established four nurseries and has stocked them with trees likely to be most useful. Now that it has demonstrated that success can be obtained it is going to try new varieties of trees which have not hitherto been grown in the Black Country. Last September the association asked for gifts of willow cuttings and His Majesty the King was among the first to respond with an order for 20,000 to be sent from Windsor. Some of those received were sent to the plantations and others were placed in the nurseries. At the present moment the association has in stock for next season 23,918 trees and 35,500 cuttings. Much has been done in the past three years and probably more will be done in the future, for people are realising that the association is doing good work. Therefore it will meet with more help and encouragement. It will have the full sympathy of the medical profession, for it is not only making the surroundings of the people more beautiful and so increasing their happiness and ideals, but it is also improving the air and the land and so giving the inhabitants better chances of health and strength.

Birth- and Death-rates.

Birmingham has established another lowest quarterly birth-rate, the birth-rate for the first quarter of the year being 30·6, which is the lowest on record for that quarter. It is higher, however, than the rate in the fourth quarter of last year, 26·9, which was also a record for its quarter. The rate varies in different wards from 19·1 to 40 per 1000. The death-rate for the first quarter, 17·9 per 1000, is slightly higher than that for the corresponding quarter of the preceding year, but still it is good for its quarter. The medical officer of health of Worcester points out in his annual report that the general death-rate of that city declines each year, but the infantile death-rate shows no improvement, indeed, during the past year it was 156 per 1000, which is slightly higher than the average rate for the previous ten years. This is the more remarkable since there have been no marked epidemics of infectious disease during the year. It is evident that the people in Worcester need instruction in the care of their children. Bilston has been suffering from measles and whooping-cough, with the result that the medical officer had to report that during March there were 69 deaths, or 32 more than in the corresponding month of the previous year. Of the 69 who died only 20 were over five years of age.

May 1st.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Laying of the Foundation-stone of the Liverpool Country Hospital for Chronic Diseases of Children.

THE foundation-stone of the Country Hospital for Children, which is being built at Heswall, was laid on April 21st by Mr. Andrew Gibson. When the entire scheme is carried through the hospital will provide accommodation for 200 beds and its total cost will be £60,000. The committee is confining its initial effort to the provision of only 100 beds. During the seven years that the institution has occupied temporary quarters at the convalescent home, West Kirby, experience of great importance to the work of treating children suffering from chronic diseases has been gained. The value of uninterrupted treatment in the fresh air of the country has been amply demonstrated, and the good results which have attended the work at West Kirby, where its scope has been necessarily restricted by the fact that only 25 beds were available, encourage the hope of a much larger sphere of usefulness in the future arrangements for the treatment of the children. The site for the new hospital, comprising ten acres, is on the side of Heswall Hill. When the complete scheme is carried into effect the buildings will stand in the form of the letter H, the ward wings being connected by the central block. At present only the central block, in which temporary ward accommodation can be found for 100 beds until the ward blocks themselves are erected, is being undertaken. This part of the scheme will cost £25,000 in addition to £15,000 for furnishing, general equipment, and liabilities in connexion with the building. The ceremony was witnessed by a large and important gathering presided over by Colonel Montgomery, the chairman of the hospital. Messages of apology for absence had been received from the Bishop of Liverpool, the Bishop of Chester, Sir Edward Russell, and others.

Opening of the Fazakerley City Hospital.

Another of the big enterprises of the Liverpool city council—the City Hospital, Fazakerley—was formally opened on April 25th by Mr. John Utting, the chairman of the port sanitary and hospitals committee, in the presence of a large gathering of the public representatives and officials of the city. The proceedings were presided over by the Lord Mayor. The hospital, which consists of a central administrative block, nurses' home, and a number of one-storey wards and isolation pavilions, stands on an area of 35 acres, the surrounding country being fine and open to the exhilarating north-west breezes from the direction of the sea. It was planned by Mr. Shelmerdine, the city architect and surveyor, with the valuable assistance of Dr. E. W. Hope, the medical officer of health; the buildings have been erected by Morrison and Sons, of Wavertree, at a cost of £121,475, to which must be added a large sum for equipment and the cost (£39,915) of the 118 acres of land purchased in 1898. The south section of the institution, which was completed in 1901, provides 160 beds for the treatment of small-pox, and the additional buildings opened on April 25th give accommodation for 350 beds for dealing with other infectious diseases. Sir James Crichton-Browne, in seconding a vote of thanks to the Lord Mayor for presiding, said that they had in this country a duplex system of sanitation, both unified and both parts of which were of extreme importance. In Liverpool they had the port sanitary authority presided over by Mr. John Utting, which might be called the blue-water school of public health officials, who were engaged in defending and safeguarding our shores against foreign invasion. They had also the land forces, the urban and rural sanitary authorities, who were engaged in dealing with those foreign foes in the form of diseases that had obtained a foothold in our land and such rebellious diseases as had sprung up amongst us. He thought we might have as complete

confidence in our blue-water sanitary officials as we had in our navy. It was certain that in this country we should have from time to time raids of foreign diseases, but, thanks to the precautions taken at that and similar hospitals, we should never again have those terrible invasions which we have had to deplore in the past. Mr. John Utting was presented with a key of solid gold bearing the Liverpool coat of arms in true heraldic colours, also the staff of Æsculapius, together with a view of the hospital, all being beautifully enamelled, the wards of the key forming the recipient's initials, the reverse side being suitably inscribed.

St. Helens Hospital: Annual Report.

The most interesting feature in connexion with the statement made by the treasurer at the recent meeting of the subscribers to the hospital was the fact of the support given to the charity by the workmen of the district. Out of 707 patients admitted during the year 563 were penny-a-week subscribers. The total subscriptions from this source during the year were £2478 odd, the total income being £3804 10*s.* 1*d.*, and the expenditure £3795 12*s.* 8*d.*

May 1st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

General Council of the University of Edinburgh.

THE statutory half-yearly meeting of this body was held on Wednesday, May 2nd. Various matters came up for consideration, the most important being the proposed alterations in the medical curriculum and a proposal that steps should be taken to have autonomy granted to the several Scottish Universities. (The proposals are given in detail at p. 1266.)

Post-Graduate Course in Edinburgh.

The Edinburgh Medical School has once more aroused itself to the fact that in an important centre such as Edinburgh it is desirable to have opportunities for post-graduate instruction. A laudable beginning with such a scheme was made a number of years ago but the founders, already weighted with the burden of under-graduate teaching, gradually withdrew from it. The idea has again taken practical form and it is proposed to begin a short course in September next.

The Glasgow University Club.

The annual summer dinner of the Glasgow University Club, London, has been fixed for Friday, May 25th. It will be held at the Trocadéro and the chair will be occupied by Sir Thomas McCall Anderson, head of the medical faculty of the University and a member of the General Medical Council, which will be holding its sittings in London during the same week.

Infantile Mortality in Barrhead.

For some time the high death-rate among infants in Barrhead has been engaging the attention of the town council. The method was tried of distributing circulars containing information regarding the care of infants, but the results accomplished in this way have not been satisfactory and more effective measures are being considered. Dr. R. Corbett, the medical officer of health of the burgh, in the course of an interesting report on the subject states that the increase of infantile deaths among the poorer classes is due in great part to carelessness and ignorance in feeding and protecting the children. As he finds it impossible to come into constant touch with these parents, he recommends, in the interests of public health, that a qualified nurse should be appointed to assist in the way both of advice and of practical household demonstrations in the proper methods of feeding, cleaning, and clothing young children. As it is imperative that such a nurse should be able to offer her services as soon as possible after a baby is born it is advised that a small sum, say 1*s.*, should be given to the first person who reports a birth to the nurse. As a number of births in Barrhead occur without the attendance of a medical practitioner it is further suggested that the nurse should be qualified to attend ordinary midwifery cases and that she attend women during their confinement if they desire her services. The town council has agreed to adopt this proposal of the medical officer and the experiment is to be tried for one year.

Sanitary Condition of Lewis.

The deplorable sanitary condition of Lewis has again been brought before the public by the publication of the annual report of Dr. W. Bruce, medical officer of health of Ross and Cromarty. In referring to Lewis, he says that the state of matters can only be considered as desperate. Here we have to deal with a poverty-stricken people living in conditions 100 years or more behind modern civilised ideas of mere existence. The proprietor of the island, though willing, cannot build some thousands of clean and comfortable cottages from his own purse, already drained to the utmost by poor- and school-rates. It has been said that the local sanitary authority should do its duty and compel these poor people to conform to twentieth century notions as to the propriety of dividing the human and bovine elements in their household accommodation. Recently Dr. Bruce visited one of the villages with this point in view, only to find that the separation meant next to no sanitary improvement and that it was impossible to drain the village without moving almost every house away from the muddled hollow in which it lies, rebuilding it on the higher ground adjacent, and finally digging a deep and expensive ditch through the rock to carry off obnoxious liquid matters.

May 2nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Outbreak of Scarlet Fever in Kildare.

AN outbreak of scarlet fever which originated in the military barracks at Kildare has already caused one death. There are 20 cases in the barracks and 10 in the town which are very serious. Every precaution is being taken by the military authorities and by the local medical officer of health. All dealers' passes from Kildare to the Curragh Camp have been stopped. On April 30th the military medical inspector of the Dublin and Belfast districts with Major Hennessy, R.A.M.C., and Dr. L. F. Rowan visited the barracks in order to investigate the cause of the outbreak. The Naas union fever hospital, which is the nearest to Kildare, is 14 miles from the town, so that the difficulty of removing patients is considerable. In fact, Dr. Rowan has found it necessary to request the military authorities to set apart a ward in the Curragh Camp fever hospital for the use of civilian cases in the event of the epidemic spreading further.

Health of Belfast.

The papers are still discussing the high death-rate in Belfast from tuberculosis and other causes. The following table, embracing a period of three months, shows the unenviable position which Belfast holds at the present time in comparison with the rest of the kingdom as to its high death-rate:—

Week ending—	Average of the great towns.	Belfast rate.	Belfast excess.
Feb. 3rd	15·5	20	4·5
,, 10th	15·5	21	5·5
,, 17th	17·2	26	8·8
,, 24th	17·3	25	7·7
March 3rd	17·4	24	6·6
,, 10th	16·7	22	5·3
,, 17th	16·2	27	10·8
,, 24th	15·8	22	6·2
,, 31st	17·0	29	12·0
April 7th...	17·0	24	7·0
,, 14th...	17·1	24	6·9
,, 21st...	17·3	25	7·7
Average...	16·6	24	7·4

Belfast and County Antrim Branch of the Royal Medical Benevolent Fund Society of Ireland.

At the annual meeting of the above society held in the Medical Institute, Belfast, on April 27th, Dr. J. Nelson, the President, being in the chair, it was reported that the amount received from all sources was £133 2*s.* 6*d.*, made up as follows: 127 Belfast members, 29 country members, and 14 friends and sympathisers not belonging to the medical profession. Deducting expenses the total amount was

£122 18s. 2d. For some reason there has been a falling off of £22 1s. 11d. The total sum paid in grants was £145, a sum in excess of the local contributions to the Fund. Only 127 out of 204 members of the medical profession in Belfast subscribe and only 29 medical men in the country contribute. Professor J. A. Lindsay was elected president for the ensuing year. An effort is to be made to interest the members of the profession in the society.

The Darnell Case.

At a joint meeting of the Ulster branch of the British Medical Association and of the Ulster Medical Society held recently it was decided to start a fund to assist Mr. C. K. Darnell in defraying his expenses at the recent trial.

May 1st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Paratuberculosis.

AT a meeting of the Academy of Medicine held on April 10th M. Poncet returned to a theory of which he has made himself the champion and which is as follows. He considers that the bacillus tuberculosis, whether of itself or by means of the toxins which it secretes, is capable of producing in the organism various lesions of an extremely diverse character, in the production of which the action of the bacillus has not been up to the present suspected. The field of action of tuberculosis, which is already only too wide, is thus found to be much increased but at the same time certain lesions the origin of which is difficult to account for can be explained satisfactorily on this hypothesis. M. Poncet, for instance, considers that there is a tuberculous rheumatism without any tuberculous bacilli being visible locally but that the local lesions are the result of an intoxication by the bacillary toxins. There are certain tumours of the breast and of the thyroid gland—namely, the adenomata—which surgeons have great difficulty in distinguishing from cancer. M. Poncet considers that these adenomata have all the character of inflamed reactive tumours. They possess no definite microbial forms nor very often any bacillus of any kind, but having studied the hereditary history of patients affected with adenomata, and by comparing their clinical forms, M. Poncet considers that they are of a tuberculous nature. M. Labbé asked M. Poncet for more definite proofs of his argument and remarked that tuberculous lesions which were free from bacilli could be inoculated into animals, such as the rice-grain bodies found in cases of synovitis. M. Poncet answered that these lesions were not tuberculous properly so called but inflammatory, although their structure indicated that the primary cause of the inflammation was tuberculous. M. Fournier said that M. Poncet's idea was plausible and all the more in that it presented an analogy to the idea which he (M. Fournier) had often put forward on the subject of syphilis. Thus, the syphilitic virus does not produce anything but syphilis, but under certain conditions it produces lesions of which the syphilitic character is by no means evident, lesions which resisted treatment by mercury and the iodides but which cannot be produced without the intervention in the beginning of syphilis. Such lesions, for instance, are tabes and general paralysis, and in these conditions we have the right to talk of parasyphilis. Similarly, in certain maladies of the skin, such as lupus erythematosus and the tuberculides, no bacillus of tuberculosis is found in the majority of cases but yet they are tuberculous in origin. There is no reason then why we should not admit the possibility of a paratuberculosis.

April 30th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The German Congress of Orthopædic Surgery.

THE German orthopædists who formerly were members of, and took part in, the Congresses of the German Surgical Society have since 1902 combined to form a separate association to which they have given the name of the German Society for Orthopædic Surgery. They had found that in comparison with the other branches of surgery orthopædic surgery did not receive the consideration to which they believed it to be entitled. Moreover, the number of papers read before the German Surgical Congress was so great that there was no opportunity for a discussion after many of them, and especially after those dealing with orthopædic surgery. The orthopædists therefore hold a special meeting of their own of only one day's duration on the day before the opening of the German Surgical Congress in order to allow members to take part in both Congresses. The Fifth Congress of the Society for Orthopædic Surgery was accordingly held in Berlin on April 3rd, Professor Lorenz (Vienna) being in the chair.—Professor Schulthess (Zürich) read a paper on a Peculiar Form of Scoliosis which occurred in young children having a tendency to rickets and was encouraged by the children lying in their cradles in unnatural positions. Mothers ought, therefore, he said, to pay great attention to the positions which children assumed in the cradle.—Dr. Finck (Charkov) read a paper on the Gradual Reduction of the Deformity produced by Pott's Disease. In contradistinction to the forcible reduction practised by Calot the principal feature of this method was that the patients must remain at perfect rest for several months or even a year wearing a plaster-of-Paris apparatus padded with cotton wool, by which continuous pressure is maintained on the deformed part. After several months they are allowed to walk by the aid of supports which reach as high as the occiput and the angle of the jaw. They begin by getting up for half an hour, a period which is by degrees extended to six hours, and in the intervals they are again placed in the plaster-of-Paris apparatus.—Dr. Spitzy (Graz) recommended the transplantation of nerves in cases of paralysis. He showed a boy, aged 12 years, who had suffered from paralysis of the radial nerve and had been successfully treated by uniting fibres of the median with the paralysed radial nerve.—Dr. Cramer (Cologne) described an operation for restoring the mobility of an ankylosed elbow.—Dr. Withek (Graz) read a paper on Dislocation of the Hip-joint. He said that in old cases of dislocation extension by weights, even as heavy as 50 kilogrammes, must be used.—Professor Lorenz said that reduction of these dislocations must not be made at too advanced an age because ankylosis might easily develop.—Dr. Heusner (Barmen) remarked that extension which was too forcible tended to produce loosening of the knee-joint.—Other papers read before the Congress dealt with trophoneurotic diseases of the joints occurring after poliomyelitis, habitual dislocation of the patella, the mechanical treatment of dislocation of the hip-joint, the treatment of club-foot, and the treatment of varicose veins.

Statistics of Suicide.

According to the statistics published by the Imperial Statistical Office, the number of suicides has slightly decreased, being 12,468 in 1904 as compared with 12,730 in 1903. The proportion of suicides per 100,000 of the population was 21·0 in 1904, 21·7 in 1903, 21·4 in 1902, and 20·8 in 1901. Arranged according to sex, in 1904 there were 9704 and in 1903 there were 10,017 suicides among males; while in 1904 there were 2764 and in 1903 there were 2713 suicides among females, so that the decrease occurred only among the males. With regard to the local distribution of suicides the report states that the lowest number was reached in the Prussian provinces of Posen, Hohenzollern, and Westphalia, being 9·9, 10·3, and 11·0 per 100,000 respectively. The highest numbers were registered in Saxe Coburg and Saxe Altenburg, being 41·8 and 41·5 per 100,000 respectively. In Hamburg 37·8 and in Berlin 31·0 suicides per 100,000 were registered.

April 30th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Sixth International Congress of Criminal Anthropology.

FROM Portugal to Piedmont, from Lisbon to Turin, is a trip delightful at all times, whether by sea or land, but particularly so when undertaken by the professional man who, satiated from the abundant and varied *menu* of the Fifteenth International Congress of Medicine, passes on to the piquant bill of fare provided by the Sixth International Congress of Criminal Anthropology. I have already indicated some of the attractions of this latter symposium and will only add on this, the morning of its inauguration, that both in its *personnel* and in its programme it

promises to be yet more successful than the last and best of its predecessors. Besides M. Magnaud, the *bon juge*, there will intervene three ex-Ministers of State, M. Lejeune, representing the "newest of the sciences" in Belgium; Van Hamel, its able pioneer in Holland, especially in the "care and cure of minor delinquents"; and M. Vucetig, already known for good work as a criminal anthropologist in Servia. Interest, dramatic as well as scientific, cannot fail to attend the contributions to the agenda paper on "The Female Assassins in Russia," Mde. Tarnowski and Mde. Rublinovich being the authors; while M. Drill Dmitri, of the same nationality, will discourse on the Effects of Seclusion in the Island of Sakhalin on its Criminal Population. M. Hamon, conductor of *L'Humanité*, and M. Habanel, of judicial fame, will treat of the Mental Rehabilitation of Weaklings of Tender Years; and in the investigation of crime Dr. Ottolenghi and Sl. nor Guasti (the highly efficient "Ispettore di Pubblica Sicurezza") will give their experiences of the anthropometric system, supplemented by a paper from Dr. Reuss of Geneva, entitled "L'Applicazione della Fotografia alla Ricerca dei Delinquenti." From the sections in which these and other cognate themes will be discussed by experts the auditor can find recreation or distraction in the "Esposizione" held as an adjunct to the Congress in the "Istituto di Medicina Legale al Valentino." Among the objects on view will be a beautifully arranged and clearly described assortment of the brains and the skulls of executed criminals, contributed by Professor Haberda of Vienna; an equally well-classified series of skeletons and masks of notorious Italian "giustiziati" sent by Professor Tenchini of Parma; and a collection of the favourite lethal weapons of the Neapolitan Camorra with their characteristic inscriptions, the contribution of Professor Frigerio. Most effective, however, from the "gruesome" standpoint is the famous Virgin of Nürnberg, a statue of a woman made of iron and hollow inside, which opens on its hinges, like a cabinet, to receive the victim, on whom it closes immediately, piercing with its inner apparatus of sharp spikes his eyes, his breast, and his abdomen till he dies in excruciating agony. Too often put in practice, this instrument of "justice" could never have been "deserved" but by the human fiend who devised it. As already stated,[1] the proceedings will open with a testimonial and address to Professor Cesare Lombroso, the initiator and indefatigable promoter of "criminal anthropology," whose career, honourable in itself, illustrates the qualities and "the defects" of the said qualities which go to make the "pioneer." Beginning life as a humble practitioner of medicine in which he had graduated with distinction young Lombroso's first academic post was that of lecturer on medico-psychology in the University of Pavia, in the wards of whose asylum he was impressed with the close connexion between lunacy and defective nutrition, most of the inmates having suffered or but partially recovered from that scourge of the Alta Italia, "pellagra." Tracing this disease to the badly grown maize, which was the staple food of the people, he gave himself no rest till, in spite of much opposition, not to say obloquy, he had wrung from the authorities, agricultural and other, a series of prophylactic measures which have since reduced the numbers of the "pellagrosi" and the intensity of their pathognomonic signs. Following up his researches into the interdependence of malnutrition and mental deficiency he received great encouragement from his fellow worker in the same direction, Paul Broca, and for several years concentrated his studies on the causation, or rather on the "conditions precedent," of epilepsy in all its stages and throughout all its ramifications. To these studies we owe his widely diffused, if not widely accepted, theories on the association of the "epileptoid cachexia" with abnormal developments, sometimes appearing in so-called "genius" and much oftener in eccentricity of character and in crime. Comparative craniology further supplied him with what he considered as confirmatory evidence and the whole culminated in his "Uomo Delinquente," the work of 15 years of observation and research. Then followed his "Uomo di Genio," translated into six European languages, the conclusions of which found many adherents not only in Italy but in Russia and in North and South America, while accepted only provisionally in Germany and Austria when not absolutely rejected. The net result, however, of his teaching, or, I should say, his propaganda, has not been without its salutary side in his native Italy, where the conditions, physical and moral, which antagonise healthy and normal development, particularly among the poor, have prevailed long enough to produce a population in which crime multiplies itself out of all proportion to its manifestations in other continental countries. It is in recognition of the good he has done directly by individual work, indirectly by example and influence continued over 30 years, that the testimonial has been accorded him to-day—a testimonial to which all the leading anthropologists interested in the phenomena of crime have appended their signatures—at this, the Sixth International Congress of the science which he is known to have fostered as well as founded.

April 28th.

[1] THE LANCET, April 7th, 1906, p. 967.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Eyesight of School Children.

AT a recent meeting of directors of elementary schools Professor Schnabel, the chief ophthalmologist of the first clinic for ophthalmology, read a paper on Myopia in School Children. He said that myopia was very frequent amongst the rising generation. He had examined the eyes of more than 4000 children of both sexes at ages between six and 14 years and 1450 eyes of youths and girls at ages between 14 and 19 years. He was decidedly of opinion that school work was not responsible for myopia of comparatively high degree, such as five, ten, or 15 dioptres. As a rule, such excessive nearsightedness was congenital—mostly produced by staphyloma posticum or excessive curvature of the lens and its capsule. The percentage of myopia at the ages from six to 14 years was nearly constant, and in the more advanced schools the percentage was somewhat raised but only very little. The most deleterious factor of myopia amongst young people consisted partly in hereditary influences and partly in the performance of fine work, such as sewing, etching, and watchmaking. It very rarely, if ever, happened that either severe mental strain (such as that of preparation for examinations) or excessive reading in a good light was responsible for loss of elasticity of the lens capsule. Reading in an unsuitable light was apt to endanger the vision without causing myopia. Hypermetropia was also found amongst a fair percentage of children. This fact was especially important, as most of these children, unless examined by an ophthalmologist, were supposed to be suffering from myopia because they were in the habit of bringing their eyes very near the book which they were reading or the paper on which they were writing. They generally used only one eye because they had to visualise the letters without accommodation. Such children very often suffered from headache if their hypermetropia was not corrected by proper glasses and were likely to be far behind the average standard of knowledge of their class-fellows on account of their liability to myasthenia musculi recti interni. Great attention should therefore be paid to the eyes of children, both as regards school work and also as regards their home occupations.

The Relation of Nasal Disease to the Functions of the Female Genital Organs.

Several interesting experiments devised for the purpose of elucidating the relations existing between the nasal mucosa and the genital organs in females have been conducted at the clinic of Professor Chrobak for maternity cases. Dr. Fliess of Berlin, although not the first in point of time, has been the most prominent advocate of the theory that there is an intimate relation between these two systems of organs, and maintains that a kind of nasal dysmenorrhœa, or hyperæsthesia of the nasal mucosa, during pregnancy exists in some persons who are not necessarily neurotic. The correctness of his views has, however, been often called in question. Dr. Jerusalem and Dr. Falkner have been trying Dr. Fliess's method of cocainising the tubercula septi nasi in cases of painful menstruation and in prolonged painful labour with gratifying results. In many cases the spontaneous contractions of the uterus after the birth of the child were incapable of expelling the placenta until the nose, and especially the anterior ends of the lower turbinated bone or the tuberculum septi, had been touched with cotton dipped in a 10 per cent. solution of cocaine. The results of these investigations were described to the Clinical Society in a paper by Dr. Jerusalem and Dr. Falkner, who have also

written on the subject in the *Wiener Klinische Wochenschrift*. No precautions were taken against suggestion, as the patients had to be informed why their noses were suddenly the object of so much attention. Some degree of toleration of cocaine was observed in a few cases when the initial doses of from three to four drops of a 10 per cent. solution were sufficient only once or twice, and then it became necessary to resort either to a larger dose or to a 20 per cent. solution.

The University of Vienna.

The new calendar of the University of Vienna, which contains the lectures and classes for the summer term, May, June, and July, 1906, has just appeared and shows little difference from that of last year except as regards some minor lectures on diagnosis and chemistry. The extent of the Medical Faculty of Vienna may be estimated from the fact that no less than 32 ordinary and 57 extraordinary professors will lecture to students and graduates during these three months. The total of lectures and classes exceeds 350, and in the work of teaching help is given by the numerous "docenten" and assistants of the various university institutions. The fees for the courses vary a good deal, being very low for the students (from 10*s.* 6*d.* to £1 1*s.*), whereas graduates have to pay from four to eight times that amount. In several classes—for instance, in gynæcology and bacteriology and experimental physiology—the number admitted is limited to six or ten, thus insuring sufficient material and adequate instruction to the students.

An Old Enactment for the Prevention of Dust.

Several medical men have been recently promoting a movement for the diminution of the dust nuisance, but efforts in this direction have been made for a much longer period than is generally recognised at the present time. A quaint document was not long ago brought to light when the librarian of the royal and imperial library found in a bundle of papers an order relative to the abatement of dust. The text of this order prohibits "riding or walking in large groups or driving at a great pace" in certain streets of the city of Vienna and in the ditches of the fortress, as it "produces annoyance to the peaceful citizens and is apt to disseminate pestilence, bad coughs, and fevers, and is generally unfavourable to health." No endeavours have, however, succeeded in exterminating some of the most annoying sources of the Vienna dust nuisance. The situation of the city in a valley between two ranges of chalk mountains, the prevalence of winds coming from the direction of these mountains, the antiquated system of street paving, and the unsatisfactory method of street cleansing all tend to give the beautiful city an unenviable reputation for dust and dust diseases. At one time tuberculous disease of the lungs was here called morbus Viennensis. At present a society for the prevention of dust has been formed with the same object as so many others of a like kind in bygone days. The only tangible result of its existence is the discontinuance of the miserable practice of dust collection in open vans and the substitution of closed dustbins, which are collected without any possibility of the contents being scattered to the winds.

April 30th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

A Case of "Sati" in the Punjab.

IT may be remembered that last year a young widow in the presence of a vast concourse of people publicly committed "sati" by consigning herself to the funeral pyre and perished amidst the flames. This occurred as recently last October in the Punjab and shows that the desire to resuscitate this horrible practice still lingers in the minds of the people. Some of her relatives were arrested, admitted the main facts, and were sentenced to severe punishment. Unfortunately, on appeal the sentences have been reduced. The ghastly performance had been advertised in the surrounding villages and the day was a festival day, so that the participation in the crime was premeditated. The magistrate described those who participated in the suicide as "the most wretched specimens of humanity it has ever been my ill fortune to see outside a hospital or asylum, of miserable physique and stunted intellect." The Punjab chief court in reducing their sentences from ten to two years' imprisonment has evidently considered them irresponsible degenerates.

Plague Riot in Seistan.

The outbreak of plague in Seistan has been attended with riot. It is curious to note how often disturbance occurs in the early part of an outbreak. At Nasirabad there were erected temporary shelters for the accommodation of the plague patients and there was also a plague hospital. These have been all wrecked. Objection seems to have been taken to the measures for the suppression of plague instituted by the local authorities. At first there was some anxiety for the safety of the Europeans at Seistan but order was partially restored and Persian troops were sent for.

The Plague Mortality in India.

The development of the annual plague recrudescence still goes on. For the week ending March 31st there were 13,996 cases with 11,823 deaths reported for the whole of India, but these figures do not include Bengal, the Punjab, and Rajputana. The report does not mention Bombay or Calcutta, in both of which cities plague is raging virulently. In Mandalay the outbreak is very severe, all business is suspended, and two-thirds of the population are reported as having fled away. Out of 3000 Chinese only 400 are said to be left. Since the outbreak began 1265 deaths have occurred—a very large mortality for the size of the city. In Rangoon the disease is still prevalent, 318 deaths being reported for March. In Bombay city the mortality is just now very high. Of 1860 deaths for the week ending March 31st 821 were due to plague, but even without these there were some 400 deaths above the average. In Calcutta the plague outbreak seems much less severe. The published figures show it to be less than half in severity to that of last year.

April 13th.

Obituary.

HENRY ALEXANDER GOGARTY, M.D. DUB., L.R.C.S. IREL.

Dr. H. A. Gogarty died at his residence in Ethelbert-road, Canterbury, on April 18th, in his seventy-second year. He had been in weak health for a considerable time, suffering chiefly from cardiac trouble, which caused his friends much anxiety last September and eventually carried him off. Dr. Gogarty received his medical education in Dublin, taking the diploma of L.R.C.S. Irel. in 1853. In 1867 he graduated as M.B. at the University of Dublin and proceeded to the degree of M.D. in 1878. He entered the medical department of the Army as assistant surgeon in 1855 and saw much service during the Indian mutiny, being present at the defeat of the Sealkote mutineers on the banks of the Ravee in July, 1857; he was also present from August 14th at the siege of Delhi and was awarded a medal with clasp. He was for many years attached to the 52nd Light Infantry (now merged in the Oxfordshire Light Infantry) and the Rifle Brigade; he was promoted to be surgeon in 1870 and retired from the Rifle Brigade with the rank of surgeon-major in 1877. He went to Canterbury about 25 years ago when he was appointed one of the honorary physicians to the Kent and Canterbury Hospital, a position which he filled with conspicuous ability until the beginning of 1905, when on his retirement from active work he was elected consulting physician to the hospital. Besides his hospital duties he was also for a long time lecturer on practical medicine at St. Augustine's Missionary Training College, Canterbury. In addition to being a skilful practitioner Dr. Gogarty was a kind-hearted man, honourable in all his dealings, and a faithful friend. He has left a widow, two sons, and two daughters. The funeral took place at St. Martin's, Canterbury, on April 21st.

ROYAL HOSPITAL FOR CHILDREN, BRISTOL.—The annual meeting of the "Ladies Auxiliary" in connexion with this institution was held on April 26th under the presidency of the Duchess of Beaufort. It was reported that during the year the sum of £522 had been raised for the funds of the hospital and that the "needlework guild" in connexion with the society had given 668 garments to the institution.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At the Congregation on April 26th the following degrees were conferred:—

M.D.—J. F. Alexander, Trinity; E. S. Scott, Pembroke; and G. W. Greene, Downing.
D.Sc.—G. H. F. Nuttall, Christ's.
M.B.—H. M. Wilson, Trinity Hall; F. D. Crew, Emmanuel; and E. W. Sheaf, Downing.
B.C.—W. P. Morgan, Clare; and F. D. Crew, Emmanuel.

UNIVERSITY OF DURHAM.—At examinations for the degree of Bachelor in Medicine held in April the following candidates satisfied the examiners:—

FIRST EXAMINATION.

Elementary Anatomy and Biology, Chemistry, and Physics.—Second-class Honours: Jabez Ethelbert Dainty and Charles Marks, College of Medicine, Newcastle-upon-Tyne. *Pass List:* Frederick Ernest Chapman and Herbert Edward Fullerton, College of Medicine, Newcastle-upon-Tyne; William Reynolds, Guy's Hospital; and William Robert Elstob Unthank and Charles Leslie Wigan, College of Medicine, Newcastle-upon-Tyne.

Elementary Anatomy and Biology.—Everard Cecil Abraham, Isaac Bainbridge, John Akilade Caulcrick, Robert Vickers Clayton, Helen Grace Clark, John Hare, John Parkinson Higham, Howard Tomlin Hunter, Laurence Heber Warneford Iredale, and George Eric Warner Lacey, College of Medicine, Newcastle-upon-Tyne; Herbert Vere Leigh, University College, Cardiff; Samuel Littlewood, George Cuthbert Mura M'Gonigle, Charles O'Hagan, and Eric Hemingway Shaw, College of Medicine, Newcastle-upon-Tyne; Henri René Guillaume Vander Beken, London Hospital and College of Medicine, Newcastle-upon-Tyne; and Stanley Worthington and James Carruthers Young, College of Medicine, Newcastle-upon-Tyne.

Chemistry and Physics.—Eliot Watson Blake, Guy's Hospital; Alexander Hay Bower, Francis Frederick Trevor Hare, and John Howard Owen, College of Medicine, Newcastle-upon-Tyne; Elliot Jessie Ramsbotham, London School of Medicine for Women; Charles Elias Reindorf, College of Medicine, Newcastle-upon-Tyne; and Madeline Rosa Shearburn and Olivia Nyna Walker, London School of Medicine for Women.

THIRD EXAMINATION.

Pathology, Medical Jurisprudence, and Public Health.—Second-class Honours: Gertrude Ethel O'Brien and Stanley Dunn Metcalfe, College of Medicine, Newcastle-upon-Tyne. *Pass List:* Charles Martin Brown, Gilbert Iliffe Cumberlege, and Ronald Martyn Davies, College of Medicine, Newcastle-upon-Tyne; William Harold Edgar, St. Mary's Hospital; Helen Mary Gurney and Hubert Shield, College of Medicine, Newcastle-upon-Tyne; and John Franklin Young, Guy's Hospital and College of Medicine, Newcastle-upon-Tyne.

UNIVERSITY OF EDINBURGH.—The following is an official list of those who have completed the first, second, and third professional examinations respectively:—

First Professional Examination.—R. M. Allan, Edward Anderson, F. G. Bell, R. A. Bell, Eveline R. Benjamin, J. G. Boal, C. J. G. Bourhill, A. M. Britton, G. S. Brown, H. H. Brown, J. F. Brown (with distinction), Peter de Bruyn, R. C. Burke, G. D. Cairns, L. D. Callender, A. F. Calwell, W. W. Carlow, M.A., G. J. Carr, B.A., J. A. H. Carter, R. B. Chamberlain, J. P. Charnock, Percy Chisholm, F. O. Clarke, W. G. Coltart, E. S. Craig, T. D. Crawford, Josias Daneel, William Darlington, James Davie, I. D. Dickson, John Drummond, Isabella G. Emslie, James Erlank, W. J. Feltham, Annie G. Fergus, E. L. Ferguson, J. B. Ferguson, F. P. Fouche, C. M. Ganapathy, F. P. Gibson, T. J. Gilmore, J. G. Gow, Colin Grant, R. W. Greatorex, Annie C. Greenep, W. P. Grieve, E. B. Gunson, H. J. Guthrie, T. E. Guthrie, R. H. Hamilton, D. S. Harvey (with distinction), J. B. Haycraft, Alexander Hood, John Hunter, A. P. W. Hutton, A. B. Jamieson, A. M. Joues, G. J. Joubert, Agnes E. Keen, T. D. Kennedy, J. C. J. Khambatta, S. G. Kriegler, E. C. Lang, D. T. M. Large, Leonard Leslie, A. Sinclair Loutit, J. F. H. Lutze, D. M. Lyon (with distinction), K. B. MacGlashan, J. M. M'Keand, A. H. G. Mackintosh, D. J. M'Laren, Elizabeth Macleod, Mary Macmillan, R. C. Malhotra, D. B. Maunsell, G. M. Miller, S. P. Moore, M. M. Morrison, William Morrison, Rhoda M. Murdoch, O. A. J. N. Muriset, Kishanlal Nehru, R. M. Nicholson, F. H. Noronha, W. H. Pallett, Dora E. Paterson, P. N. Pedersen, A. Z. Phillips, J. A. Pienaar, B.A., C. K. Pole, A. H. Porter, W. D. Reid, D. T. Richardson, W. S. Robertson, Lizzie Rose, William Russell, C. M. Schaffter, J. W. Senter, Daisy L. Shawyer, B.A., Alexander Simpson, F. M. Sinclair, D. R. Bedell Sivright, B.A., T. W. Smart, Gertrude M. Smith, T. C. Smith, R. O. Spencer, G. H. Stevenson, John Stevenson (Rosencath-street), F. M. Stewart, J. D. G. Stewart, Malcolm Stewart, J. R. Stott, George Tate, L. W. Owen Taylor, B. C. Tennent, A. B. Todd, J. J. Tough, C. B. Tudehope, Jane A. Walke (Old Regns.), R. C. Wallace, A. M. Warwick, G. A. Wyon, and R. B. M. Yates.

Second Professional Examination.—G. J. Adams, R. C. Alexander (with distinction), H. M. Anderson, William Bainbridge, Margaret W. Bartholomew, Lydia D. la Trobe Bateman (with distinction), G. L. Batra, A. R. Bearn, James Black, Henry Blyth, A. M. Bose, William Boyd, John Brander, L. A. P. Burt, Ellison Cansfield, J. A. R. Cargill, J. T. Carson, Peter Chalmers, D. G. Cooper, B.A., H. S. Cormack, A. C. Court, J. C. Craig, M.A., Emilie C. Creaser, John Crocket, J. M. Dalrymple, Purser Davies, J. M. Deuchars, P. S. Dias, A. L. Dykes, W. G. Evans, John Findlay, Thomas Gardner, A. I. Girdwood, R. L. Girdwood, J. A. Gordon, Peter Gorrie A. G. M. Grant, J. C. B. Grant, J. K. Hamilton, M.A., James O. Hamilton, Robert Hannah, F. W. Hay, John Hewat, S. W. Hogg, J. D. Ingram, K. R. K. Ivengar, F. E. Jardine, J. J. Jervis, W. P. S. Johnson, M. J. Johnston, J. V. Karve, H. W. Kerrigan, Catherine Kirk, M.A., E. W. Kirk, R. A. Krause, F. R. Laing, C. L. Laurent, R. D. Laurie, H. R. Lawrence, M. A. Lindsay, A. S. Macbeth, John Macdiarmid, Ranald MacDonald, R. F. D. Macgregor, W. J. M'Keand, Kenneth Mackenzie (with distinction), A. C. M'Killop, D. R. C. Maclagan, I. R. MacLeod, Ada J. Macmillan, W. M. Macnab, David Macnair, E. R. D. Maconochie, S. E. Malherbe, A. C. Wallace, M.A., John Marshall, R. C. J. Meyer, A. F. Miller, F. A. Mitchell, Flora Morrison, I. A. van Niekirk, E. F. W. Nixey, A. C. Norman, P. G. Palmer, A. B. Pearson, J. H. H. Pearson, A. A. W. Petrie, B. B. Phillips, Laura W. Pugh, J. J. van Rensburg, E. W. Richards, W. G. Riley, †A. G. Ritchie, Agatha M. Robinson, D. H. Russell, John Scott (with distinction), J. T. Simson, E. W. Smerdon, W. B. Sommers, J. E. Spence, William Stobie, Adam Tait, A. L. Taylor, G. P. Taylor, J. Gordon Thomson, M.A., J. J. Thomson (with distinction), N. G. Thornley, R. W. Lang Todd, Mary M. M. Turpie, Raymond Verel, F. H. de Villiers, A. A. Walbrugh, E. A. Walker, W. O. Walker, H. S. Wallace, L. E. B. Ward, F. K. te Water, W. H. te Water, F. W. Waterworth, Alexander P. Watson, M.A., Hugh B. Watson, M.A., H. L. Watson Wemyss, Adam White, J. L. Masterman Wood, R. L. C. Wuppermann, A. G. Yates, M.A., and W. A. Young.

Third Professional Examination.—J. B. Alexander, J. L. Annan, J. C. Ashton, Ernest Banks, A. C. Barker, C. B. Baxter, A. E. Bennee (with distinction), J. W. Bingham, J. A. Brand, Alexander Bremner, Thomas Buchan, Thomas Burrell, P. D. Cameron, R. J. Chapman, W. G. Cobb, W. D. Coghill, C. E. A. Coldicutt, C. H. Corbett, H. C. D. Cross, Mackenzie Douglas, J. C. Drysdale, G. L. Duncan, A. D. Edington, B.Sc., Robert Edwards, P. A. Erevrard, J. Letitia D. Fairfield, W. P. Ferguson, M.A., B.Sc., Mary S. Finlayson, W. S. Forbes, John Fraser, J. B. Gibson, M.A., R. M. Glover, J. M. Grant, D. G. Gray, A. R. Gunn, D. J. Guthrie, George Henderson, W. S. Heron, A. Fergus Hewat, Matthew Heyns, James R. Hill, J. K. A. Hofmeyr, St G. M. L. Homan, J. H. Horne, Lloyd Hughes, T. J. Hughes, Alexander Hunter, H. B. Hunter, M.A., Spencer Jackson, J. A. Jamieson, R. H. Jamieson (with distinction), Blanche M. L. Johnston, T. Arnold Johnston, W. D. Stoney Johnston, Daniel Johnstone, M.A., G. G. Jolly (with distinction), S. W. Joubert, J. G. de Kock, G. F. V. Leary, J. H. Lechler, David Lees, M.A. (with distinction), Cecil R. Lethem, G. L. Little, N. F. Lloyd, C. W. L. Luethgen, G. J. Luyt, Thomas Lyon, R. D. M'Allister, L. G. M'Cune, W. S. M'Cune, Angus Macdonald, James F. Mackay, John L. Mackay (with distinction) A. T. Mackenzie, M.A., R. E. M'Laren, D. J. M'Rae, Pauls Maier, J. A. Manifold, A. H. M. Maxwell, F. W. Michael, G. G. Middleton, Margaret M. Miller (with distinction), A. P. Mitchell, J. A. Morris, John Morrison, James Muckart, Ara G. Murchison, William Murdie, M.A., Meher A. D. Naoroji, Joseph Newall, J. J. H. Nelson, A. T. Paterson, C. F. Pattie (with distinction), J. S. Peebles, G. R. Pillai, W. J. Porteus (with distinction), O. E. Powell, N. H. Prior, D. H. Rai, B.A., W. R. Ridley, Adam N. Robertson, Charles Robertson, David Robertson, W. A. Scobie, Francis L. Scott, W. J. Simpson, J. T. Simson, E. Drybrough Smith, F. F. S. Smith, R. A. Spence, Dorothy W. Stevenson, L. H. F. Thatcher, C. A. Thelander, C. P. Theron, David Thomson, William Thomson, W. Wilson Thomson, V. F. Usher, A. M Vlok, Helen M. Wakefield, Martha B. Webb, J. C. B. Williams, and J. L. Wilson.

ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF EDINBURGH AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the April meetings of the examiners the following candidates passed the respective examinations:—

First Examination (Five Years' Course).—Samuel Ralph Waugh, Toddington, Beds; Hofmeyr Schimper, South Africa; David Lindsay Hutton, Glasgow; Joseph Louis Pinto, India; Gideon Joubert du Preez, Cape Colony; and Willoughby Edward Pellew Briggs, Rochdale.

Second Examination (Five Years' Course).—John Cornock Hawkes, Ireland; Harold Parker Bruce Tait, Jamaica; Franklin Joseph de Souza, Goa, India; Henry William Turner, Glasgow; George William Mason, Pontypool, Mon.; David Welsh, Lanarkshire; Maurice Edward Kayton, Bagdad; Samuel Abeyesundere, Ceylon; Thomas Nicholson Wilthew, Hexham; George Fred. Walker, Bootle; Ferdinand Byrne, Liverpool; William Rich Mackenzie, Belfast; and Robert M'Connell Blair, Glasgow.

Second Examination (Four Years' Course).—William Clegg Newton, Manchester; and Patrick John Alexander Curtin, India.

Third Examination.—James Fenbair Jefferies, Cork; Matthew Hamilton Fleming, Avondale; Thomas Bertram Eames, Kearsley; George Coats, Paisley; Walter Ernest Barrett, Leeds (with distinction); Graham Smith, Ashbourne, Derby; John Moncrieff Muir, Kilmarnock; Evan Alan Sevill Shaw, Callao, Peru; Alex. O'Flaherty, Ireland; Phiroza Behranji Malabari, India; Ellis Thomas Evans, Wales; Fred. Garnet Allan, Whaley Bridge, Cheshire; James Sullivan, Co. Cork; and Thirukama Sundara Reddy, Madras.

Final Examination and admitted Licentiates of the three Cooperating Authorities.—Edward Arthur Smith, Southport; James Logan, Maryhill; Charles Conway Fitzgerald, Belfast; Daniel Thomas Henry Croly, Dublin; John Hamilton Fullarton, M.A., D.Sc., Brodick; Andrew Ford Garrand, Langside, Glasgow; Norman Bennington Watch, Partick; Alexander Brown, Galston; Francis William Cooper, Enniskillen; and Hormusji Jamshadji Chenoy, Edinburgh.

HONOUR TO AN ARBROATH MEDICAL MAN.—Dr. T. F. Dewar of Arbroath who was recently appointed medical officer of health of the county of Forfar, was honoured by his fellow townsmen on the evening of April 26th, when a company of over 100 representative citizens entertained him to a complimentary dinner in the White Hart Hotel.

ROYAL INSTITUTION.—The annual meeting of the members of the Royal Institution was held on May 1st, the Duke of Northumberland, K.G., being in the chair. The annual report of the committee of visitors for the year 1905, testifying to the continued prosperity and efficient management of the institution, was read and adopted, and the report on the Davy Faraday Research Laboratory of the Royal Institution, which accompanied it, was also read. 45 new members were elected in 1905. 63 lectures and 19 evening discourses were delivered during the year. The books and pamphlets presented amounted to about 254 volumes, making, with 697 volumes (including periodicals bound) purchased by the managers, a total of 951 volumes added to the library in the year. Thanks were voted to the president, the treasurer, and the honorary secretary, to the committee of managers and visitors, and to the professors, for their valuable services to the institution during the past year. The following gentlemen were unanimously elected as officers for the ensuing year:—President: the Duke of Northumberland. Treasurer: Sir James Crichton-Browne. Secretary: Sir William Crookes. Managers: Sir William de W. Abney, the Right Hon. Lord Alverstone, the Right Hon. Earl Cathcart, Dr. A. H. Church, Dr. F. Elgar, Dr. D. W. C. Hood, Mr. M. Horner, Sir William Huggins, the Right Hon. Lord Kelvin, Mr. H. F. Makins, Dr. Ludwig Mond, Sir R. Douglas Powell, Bart., the Right Hon. Lord Sanderson, Mr. Alexander Siemens, and the Right Hon. Sir James Stirling. Visitors: Dr. J. Mitchell Bruce, Mr. Dugald Clerk, Sir John George Craggs, Mr. H. Cunynghame, Mr. G. F. Deacon, Mr. E. Dent, Rev. J. H. Ellis, Mr. R. K. Gray, Mr. C. E. Groves, Mr. F. G. Henriques, Mr. A. C. Ionides, Mr. C. E. Melchers, Mr. E. R. Merton, Mr. H. Swithinbank, and Mr. G. P. Willoughby.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held on April 26th, at 6, Suffolk-street, Pall Mall, Dr. F. H. Champneys being in the chair. A letter was read from a certified midwife saying that since the Midwives Act came into force it had made, so far, very little difference in the practice of midwives. It was also stated in the letter that in the locality where the writer practised the untrained women still practised and that with one exception the medical men did not approve of practising midwives. They informed prospective mothers that if the certified midwives summoned medical men in difficult cases the medical men would double their fees. It was further pointed out in the letter that the poor folk on 12*s.* a week were frightened that the certified midwife would send for a medical man and so let them in for a bill for 2 guineas. Dr. J. Ward Cousins said that the important question of payment to medical men called in by midwives in difficult cases was raised by the letter and the matter involved the satisfactory carrying out of the Midwives Act. If the fee for the medical man called in by the midwife was paid by the patient the difficulty was solved because no one would object to the medical man being paid in that manner. Cases, however, had occurred in which certified midwives had been compelled to pay the fee of the medical man summoned before he would assist the midwife. Dr. Ward Cousins did not think that the medical profession expected a medical man called in to an emergency case of difficulty to be paid by the midwife who called him in. The subject was one that had to be considered by the Central Midwives Board and it had to be remembered that the difficulty in regard to payment to medical men in these cases was felt most acutely in country districts where practitioners had to travel sometimes many miles at night without receiving any fee. In Cardiff and Liverpool the local supervising authorities had made arrangements for the payment of medical fees in these cases. The question was a critical one because medical men were required in every sense of the word to give assistance in these cases, and the Central Midwives Board ought to insist that some provision should be made by the local supervising authorities for that purpose. Miss J. Wilson asked under what powers Liverpool and Cardiff arranged for the payment of medical men when called in. The Secretary explained that the accounts of county councils were subjected to the Local Government Board auditors and such payments would be surcharged, but the boroughs were not in that position, for they elected their own auditors whose reports need not be regarded by the boroughs. If rich and large boroughs chose to break the law it was their own matter. Mr. E. Parker Young moved that the matter should be referred to the Standing Committee to consider and report what amendment of the Act was desirable.—Dr. Ward Cousins seconded the motion which was carried.

APOTHECARIES' HALL OF IRELAND.—Mr. D. J. Boyle having completed his final examination has been granted the diploma to practise in medicine, surgery, midwifery, and pharmacy.

Mr. Charles Arthur Wigan, M.D. Durh., M.R.C.S. Eng., L.S.A., has been elected chairman of the Portishead (Somerset) district council.

LITERARY INTELLIGENCE.—The annual subscription to the *Paris Medical Journal*, the appearance of which we notice elsewhere, is 12*s.* Communications should be addressed to the editors, Dr. Gros, 28, Rue de Ponthieu, or Dr. Warden, 9, Rue de Chalgrin, Paris.

TIVERTON INFIRMARY.—Considerable improvements are being carried out at the Tiverton (Devon) Infirmary. Mr. J. Coles has presented a house adjoining the institution which is to be utilised as a nursing home. He has also given £500 for improvements and this will be expended upon furnishing the nursing institute, enlarging the children's ward, and making other improvements in the infirmary. An additional £300 will be required and it is hoped to raise this sum by means of a bazaar.

MEDICO-PSYCHOLOGICAL ASSOCIATION. — The south-eastern division of this association met at the Herts County Asylum, Hill End, near St. Albans, on April 25th. There was a large attendance of members. After the wards had been inspected Dr. A. N. Boycott hospitably entertained the company to lunch. At the meeting a resolution was passed recommending the association to take the opinion of the members as to the new psychological tables. Dr. W. H. B. Stoddart read a paper entitled "Instincts: a Psycho-Physical Study in Evolution and Dissolution," and compared the mental evolution of the child with the inverse process occurring in the dissolution of dementia. Dr. D. G. Thomson introduced a discussion on the question of the preparation of nurses for the examination for the medico-psychological certificate and on the conduct of the examination. Votes of thanks to Dr. Percy Smith, the chairman, and to Dr. Boycott terminated the proceedings.

ROYAL EYE HOSPITAL, LONDON.—In connexion with the courses of instruction in ophthalmology which are now being given at this hospital Sir William J. Collins gave the inaugural lecture on April 30th before an appreciative audience of about 30 students. Professor M. M. McHardy, the senior surgeon of the hospital, occupied the chair. The lecturer took for his subject the Study of Ophthalmology. In the course of his lecture Sir William Collins said that the study and treatment of diseases of the eye were among the earliest to lend themselves to the handling of the specialist. The introduction of the ophthalmoscope served to accentuate the differentiation of ophthalmology from the common stock of medical knowledge. The lecturer emphasised the fact that ophthalmic surgeons should keep the base of their speciality broad, lest they lose something of philosophic insight, of that power of seeing the *one in the many*, that breadth of view which the history of discovery tells us has ever been the source and inspiration of new truth. It was pointed out that for a fruitful and rational study of ophthalmology it was imperative that we should always retain, on the one hand, close touch with scientific method as recognised in other departments of knowledge and investigation and, on the other hand, a broad nexus between ophthalmology and general surgery and medicine. The lecturer then illustrated by examples the relationship of the diseases of the maxilla and of the nasal fossæ to those which might follow in the orbit, and he also emphasised the close relationship between the various forms of ophthalmoplegia and such diseases as locomotor ataxia and general paralysis of the insane. At the close of the lecture Professor McHardy proposed a vote of thanks to the lecturer, which was seconded by Mr. L. Vernon Cargill, who also briefly explained to the audience that it had been decided to give systematic instruction in eye diseases at the Royal Eye Hospital and that this would be carried out by Mr. G. T. Brooksbank James, Mr. Arthur W. Ormond, and Dr. H. Willoughby Lyle, while the senior surgeons would

from time to time deliver special lectures and give clinical demonstrations. Mr. Cargill stated that the clinical material was abundant, which was shown by the fact that last year more than 23,000 new cases were treated in the out-patient department. Full particulars of these courses may be obtained from the honorary secretary, Mr. Ormond.

STRATTON COTTAGE HOSPITAL.—At the annual meeting of the supporters of the cottage hospital at Stratton in Cornwall the committee in its report stated that it wished to record its deep sense of gratitude to Mr. J. Montague Braund, who had resigned the post of honorary medical officer to the institution after 38 years' service. The committee further said that Mr. Braund had not only given much time to the work of the hospital but had also shown a constant interest in its welfare.

JUBILEE OF THE LONDON BIBLE WOMEN AND NURSES' MISSION.—The Marquis of Northampton, president of this mission, has issued to the press an earnest appeal on behalf of the Jubilee Fund. The mission was founded in 1857 and in 1868 district nursing work was added. There is also in connexion with the mission a convalescent home which annually receives 300 patients. A sum of at least £14,000 a year is required to carry on the beneficent work of the mission. Subscriptions should be sent to the honorary secretary, 2, Adelphi-terrace, Strand, W.C., or to Lord Kinnaird, the treasurer, at the bank of Messrs. Barclay and Co., 1, Pall Mall East.

LEAMINGTON SPA.—It is not impossible that in time we may see our British watering places sought after by foreigners as much as foreign watering places are by the inhabitants of these islands. Although the waters, the methods of treatment, and the social attractions may be as great at home as abroad, yet many persons will prefer to go abroad on account of the change of scene, of manners, and of food which they obtain. But British watering places are certainly waking up and in proof of this we have just received some publications relating to Leamington Spa. The enterprising town council, to whom the baths belong, has, with the assistance of the medical practitioners of the town, drawn up a book of order forms for the baths whereby any practitioners may give exact directions for the kind of bath he wishes his patient to have, besides the other methods of treatment which are given. Such are massage and the application in its various forms of electricity. These latter have been quite recently introduced. Besides its purely medical side Leamington possesses various social attractions and is one of the great hunting centres of England. The town council, we think, deserves that success in making Leamington a sought-for health resort which it is evidently doing its best to attain.

ROYAL PORTSMOUTH HOSPITAL.—On April 25th, in the presence of a large assemblage, the Mayor of Portsmouth, Sir George Couzens, laid the memorial-stone of a new operating theatre and corridor of the Royal Portsmouth Hospital. Mr. Bramsdon, M.P., chairman of the governors, presided and spoke of the splendid work which had been done during the last 50 years in the old theatre, but the rapid strides in surgical science had made it obsolete and necessitated the erection of a well-equipped operating theatre thoroughly up to date. The contract cost of this was £2075. He stated that Mr. H. Rundle had taken advantage of the fact that building operations were in progress and had generously given a museum and library, which would be a valuable addition to the usefulness of the hospital. The new operating block, together with the corridor connecting the two existing ward blocks, which were completed in 1899, is the second portion of the scheme for the entire reconstruction of the hospital and contains, besides the operating room, a room for the administration of anæsthetics, a surgeon's room, and a room for sterilising dressings, instruments, &c. The whole block is constructed of fireproof materials and all the walls and ceilings will be lined with opalite (glass), a light green five feet high and white above, and all angles will be well rounded. The floors will be laid in Rust's vitreous glass mosaic paving, also with rounded angles. The artificial lighting will be electric and special arrangements will be made for the supply of electric current for motors, lamps, and cauteries. The warming and ventilating will be by means of hot-water coils. Behind each of these coils will be an opening containing an electric fan which will pump air into the room, the air having to pass through a screen formed of muslin for the purpose of cleaning it. These screens are arranged so that the muslin can be removed and a new piece fixed in a few minutes. In the ceiling at the back of each room is an extract shaft leading to a box on the roof, in which is another fan drawing the air outwards; thus a continual gentle current of air will be passing through these rooms when they are in use. It will be possible to change the air in these rooms five times in every hour. The floors of all rooms are so arranged that all the walls can be washed down with a hose pipe and the water taken away in the drain. The new buildings, which will be completed by Michaelmas next, have been designed by Messrs. Young and Hall.

SANITATION AND PUBLIC HEALTH IN FRENCH WEST AFRICA.—Captain Cromie, British Consul-General at Dakar, in his annual report to the Foreign Office just received, mentions that in April, 1904, an ordinance was published laying down regulations for the preservation of public health with the special object of fighting malaria by the destruction of mosquitoes, of preventing epidemic maladies, and of enforcing vaccination. At the same time municipal sanitary services and sanitary brigades were created. These bodies began their work in Senegal on Jan. 1st, 1905, and were successfully formed in the other colonies. It is difficult as yet to give an account of the results obtained by this measure but in the case of Dakar they seem to have been favourable. In spite of the numerous public works, which have made of Dakar a vast workshop, which have drawn a large outside population, both European and native, and have opened up the ground in all directions—without being stopped during the rainy season, when the public health is at its worst—the gross number of admissions to hospital from Jan. 1st to Oct. 31st, 1905, diminished by 210. Malarial patients were reduced from 407 in 1904 to 242 in 1905 and private practitioners give similar results. The general mortality declined from 12·5 to 10·1 per cent. One case of yellow fever occurred in 1905 but thanks to the very vigorous measures immediately taken and also to the improved sanitary conditions, this case, instead of as in former years leading to an epidemic, remained quite isolated. Nor has the public health of the native population been neglected. In addition to the medical corps of the colonial army, a number of civil surgeons have been appointed with the special object of looking after the health of the natives in the interior districts. In addition a corps of native assistant doctors is to be formed. Each of the civil surgeons will have one or more native pupils whom he will instruct in general practice. Those who show sufficient promise will subsequently undergo instruction in the chief hospital of the colony, after which they will be stationed in districts where their services are required. Special attention will be directed to reducing the percentage of infant mortality, which is very high, and also to the encouragement of vaccination. For this latter purpose a vaccine station is to be established in each colony. Altogether a sum of £48,280 is devoted to sanitary services in the general budget for 1906, apart from the credit for those services in the various local budgets.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

A Shops Bill.

THE Bill which Sir CHARLES DILKE has introduced in the House of Commons to amend the law relating to shops is drawn on the same lines as the Bill introduced in the session of 1904. The first three clauses have been modified in consequence of the passing of the Shop Hours Act, 1904. It is proposed by the Bill to amend the Shop Hours Act by making it compulsory on local authorities to make closing orders for their areas, while empowering them to refer to the ratepayers the questions whether any order shall come into operation at all and whether any alteration shall be made in the proposed order. The Bill determines the latest closing hours for each day which may be fixed by the local authority, leaving the local authority free to distribute the particular closing hours over the different days of the week. In order to insure uniformity as far as is convenient, it is proposed to give control to authorities administering wide areas—viz., the County Council in London, and elsewhere to the county or borough council.

The Bill repeats the miscellaneous proposals of the Bill of 1904 with regard to the Sunday closing of shops, the prohibition of the employment of children under 14 years of age, the hours of employment in shops, and their sanitary condition, ventilation, and conveniences. It is so designed as to give to persons employed in shops some of the protection which the existing law gives to persons employed in factories and workshops.

Cigarette Smoking by Juveniles.

An influential Scotch deputation waited upon the Lord Advocate on April 27th to urge upon him the propriety of supporting Dr. MACNAMARA'S Bill, which makes it an offence for a person to sell tobacco to boys and girls under 16 years of age. The representative of the Glasgow School Board expressed the opinion that the cigarette habit among children would not be removed unless the use of tobacco by children were made an offence against the children themselves. In his reply the LORD ADVOCATE acknowledged that Parliament and the public had been apprised by the reports of the Royal Commission on Physical Training and the Departmental Committee on Physical Deterioration of the seriousness of the matter from the point of view of the physical well-being of the youth of the country. But he also pointed out that nothing had been laid before Parliament in the shape of a report which favoured the idea of making young people criminals for smoking cigarettes. The practical question was whether they would get Parliament to sanction a proposal making it a penal offence to supply tobacco and its manufactured products to young people under 16 years of age. A few years ago such a proposal would have been a hopeless one but he felt bound to confess that the proved evidence of physical deterioration dissipated entirely the idea that the grievance was a negligible one. Personally he approved of the principle of Dr. MACNAMARA'S Bill and he promised to suggest to the Secretary for Scotland the desirability of doing something to back up Dr. MACNAMARA'S efforts.

HOUSE OF COMMONS.

THURSDAY, APRIL 26TH.

Physical Deterioration.

Mr. WEIR asked the Secretary for Scotland whether the Local Government Board for Scotland had yet arranged to issue to parochial medical officers, sanitary inspectors, and inspectors of poor leaflets containing the opinions of the Committee on Physical Deterioration relative to ventilation and the bringing up of young children, with a view to the dissemination of information on these subjects.—Mr. SINCLAIR answered: The Board has prepared and will shortly issue a leaflet on the management of young children. It has already issued a comprehensive circular on the control of pulmonary tuberculosis, and it is now considering what further measures may be recommended.

The Central Midwives Board and Poor-law Infirmaries.

Mr. HELME asked the President of the Local Government Board whether, having regard to the refusal of the Central Midwives Board to recognise certain of the large Poor-law infirmaries as training institutions, he would have a return prepared showing the names of the institutions recognised as training institutions by the Central Midwives Board together with the number of midwifery cases in each.—Mr. JOHN BURNS answered: The Lord President of the Council is the Minister concerned with the Central Midwives Board and the matter referred to in the question is therefore for him. I understand, however, that there would be no objection on his part to give the information desired.

FRIDAY, APRIL 27TH.

Sleeping Sickness in Africa.

Mr. REES asked the Under Secretary of State for the Colonies whether special measures were being taken to guard against the spread of the sleeping sickness into British Central Africa Protectorate and North-Eastern Rhodesia by the tsetse fly or by other agencies, and whether the effect of the game preserves at Chiromo had been considered in connexion with this contingency.—Mr. CHURCHILL answered: No apprehension has hitherto been expressed by the administration of the British Central Africa Protectorate or that of North-Eastern Rhodesia as to the spread of sleeping sickness into those territories, nor has the Commissioner of British Central Africa Protectorate recommended the adoption of measures to guard against it. Complaints have been made in one quarter in the Protectorate that the Elephant Marsh game reserve at Chiromo harbours the tsetse fly but the suggestion is denied by the Commissioner.

MONDAY, APRIL 30TH.

Vaccination in the Army.

Mr. WEIR asked the Secretary of State for War whether he could state what quantity of glycerinated calf lymph was produced at the Army and Navy Vaccine Institute last year, the number of tubes used during the year at military stations, the number sold, and to whom.—Mr. HALDANE answered: The quantity produced was sufficient for 107,766 vaccinations; the number of tubes used during the year at military stations was 67,685. No lymph produced at this establishment is sold.

TUESDAY, MAY 1ST.

Control of Pulmonary Phthisis.

Mr. WEIR asked the Secretary for Scotland whether in view of the statement contained in the public health circular of March 10th last, entitled "Administrative Control of Pulmonary Phthisis," he would state what arrangements would be made for the notification of the disease in each of the six crofting counties.—Mr. SINCLAIR replied: The question whether the Infectious Disease (Notification) Act should be extended to include consumption is one for the decision of the local authorities concerned. The procedure required to be carried through is set forth in Section 7 of the aforesaid Act. I have also to refer the honourable Member to Part IV. of the Local Government Board's circular of March 10th last to which he alludes.

Administration of the Vaccination Act.

Mr. WILKIE asked the Secretary for Scotland whether he was aware that, in the administration of the Vaccination Act in Scotland, prosecutions and imprisonments of respectable citizens had recently occurred because of their conscientious objections to have their children vaccinated; and would he issue an order that, pending the promised inquiry on this matter, these prosecutions and imprisonments would be suspended.—Mr. SINCLAIR answered: I have no information as to the particular cases to which the honourable Member alludes. The parish councils in Scotland have no power to make exception in the case of conscientious objectors. Prosecutions and imprisonments could not be suspended without alteration of the law. The Local Government Board for Scotland has from time to time advised parish councils that they may exercise a reasonable discretion in the matter of enforcing the statutory penalties both in the case of a prosecution for failure to vaccinate a second child and in the case of a second prosecution for the same child. In giving this advice the Board has pointed out that, as default generally arises from negligence rather than from conscientious objection on the part of parents, it will be the duty of parish councils to use the most careful discretion where they relax the strict letter of the law in any case which may be brought before them.

Mr. WILKIE also asked the Home Secretary whether, in view of the manner in which the Vaccination Act had been administered and the treatment to which some conscientious objectors had been subjected, mainly owing to lack of uniformity in administration, he would in the circular he was about to issue, give instructions as to the manner of examination of poor applicants and arrange that whatever ameliorative administrative improvements were issued should be made applicable to Scotland, where recently respectable citizens had been imprisoned because they held conscientiously that this practice was not only useless but dangerous.—Mr. GLADSTONE answered: In the circular which I am about to issue I propose to draw the attention of magistrates to what I am advised is the real meaning and intention of the Act and to suggest considerations which may properly be taken into account in dealing with applications; but I have no authority to give any instructions in the matter. The Act does not extend to Scotland and the latter part of the question should be addressed to the Secretary for Scotland.

BOOKS, ETC., RECEIVED.

MILLER, T. MASKEW, 120, Adderley-street, Capetown.

Bantu Folk Lore (Medical and General). By Matthew L. Hewat, M.D. Price 7*s.* 6*d.* ("Copies obtainable through Messrs. J. and A. Churchill, London.")

MITTLER, ERNST SIEGFRIED, UND SOHN, Kochstrasse, 68-71, Berlin.

Medizinal-Berichte über die Deutschen Schutzgebiete. Deutsch-Ostafrika, Kamerun, Togo, Deutsch-Südwestafrika, Neu-Guinea, Karolinen, Marshall-Inseln u. Samoa, für das Jahr 1903-04. Herausgegeben von der Kolonial-Abteilung des Auswärtigen Amts. Price M.7.50.

MORING, ALEXANDER, LIMITED, The De La More Press, 32, George-street, Hanover-square, London, W.

A First German Course for Science Students. Comprising a Reader and Outline of Grammar, with Diagrams and Vocabulary. By H. G. Fiedler, Professor of German at the University of Birmingham, and F. E. Sandbach, Lecturer in German at the University of Birmingham. Price 2*s.* 6*d.* net.

MORRISON I. SWIFT PRESS, New York.

Marriage and Race Death. The Foundations of an Intelligent System of Marriage. By Morrison I. Swift. Price 50 cents.

OFFICE OF THE SUPERINTENDNT OF GOVERNMENT PRINTING, INDIA, Calcutta.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Goverment of India. New Series. No. 22. Mediterranean Fever in India: Isolation of the Micrococcus Melitensis. By Captain George Lamb, M.D., I.M.S., and Assistant Surgeon M. Kesava Pai, M.B., C.M. Madras. Price 10 Annas or 1*s.*

PONSONBY AND GIBBS, University Press, Dublin. (For the Royal University of Ireland.)

The Royal University of Ireland. Examination Papers, 1905. A Supplement to the University Calendar for the Year 1906. Price not stated.

SMITH, ELDER, AND CO., 15, Waterloo-place, London, S.W.

Saint Bartholomew's Hospital Reports. Edited by A. E. Garrod, M.D., and W. McAdam Eccles, M.S., F.R.C.S. Vol. XLI. Price not stated.

SOUTHERN SURGICAL AND GYNÆCOLOGICAL ASSOCIATION. (Dr. W. D. Haggard, Jun., Secretary, Nashville, Tennessee, U.S.A.)

Transactions of the Southern Surgical and Gynæcological Association. Vol. XVII. Seventeenth Session, held at Birmingham, Alabama, Dec. 13th, 14th, and 15th, 1904. Edited by W. D. Haggard, M.D. Price not stated.

SPOTTISWOODE AND CO., LIMITED, 54, Gracechurch-street, London, E.C.

The Dentists Register: Printed and Published under the Direction of the General Council of Medical Education and Registration of the United Kingdom, pursuant to an Act passed in the Year XLI. and XLII. Victoriæ, Cap. XXXIII., entitled An Act to Amend the Law relating to Dental Practitioners. 1906. Price 3*s.* 4*d.* Copies for previous years, price 1*s.*

WRIGHT, JOHN, AND CO., Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

The Medical Annual: A Year-book of Treatment and Practitioner's Index. 1906. Twenty-fourth Year. Price 7*s.* 6*d.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ADAMS, G. BASIL D., B.M., B.Ch. Oxon., has been appointed Assistant Resident Medical Officer at the King Edward VII. Sanatorium, Midhurst, Sussex.

ASHWIN, R. H., M.B. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Market Weighton District of the county of York.

AUDEN, G. A., M.D., B.C. Cantab., has been elected Assistant Honorary Medical Officer to the York County Hospital.

BRISCOE, WILLIAM THOMAS, M.D., M.Ch. Dub., has been appointed Medical Officer for the Pewsham District by the Chippenham (Wilts) Board of Guardians.

BOND, FRANCIS THOMAS, M.D. Lond., M.R.C.S., F.R.S. Edin., has been re-appointed Medical Officer of Health by the Cirencester Rural District Council.

CARDOZO, S. N., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer and Public Vaccinator for the Northmolton District by the Southmolton (Devon) Board of Guardians.

HARDING, CHARLES HEADLEY, M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer to the Northern Division of the Whittlesea Union and Public Vaccinator to the Whittlesea Rural District.

HARTFORD, A. H. B., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Christchurch District of the county of Hants.

MACKEOWN, W. J., B.A., M.B., B.Ch. R.U.I., has been appointed Senior Assistant Medical Officer to the County Asylum, Fareham, Hants.

OLLERENSHAW, ROBERT, M.B., Ch.B. Vict., has been appointed Senior House Surgeon to the Liverpool Infirmary for Children.

RECORDON, R. B., L.D.S. R.C.S. Eng., has been appointed Assistant Honorary Dental Surgeon to the York County Hospital.

RENTZSCH, SIGISMUND HENRY, L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Medical Officer to the Stratton (Cornwall) Cottage Hospital.

ROLSTON, JOHN R., M.R.C.S., L.R.C.P. Edin., has been appointed Honorary Ophthalmic Surgeon to the Royal British Female Orphan Asylum, Devonport.

THOMAS, H. MORTIMER, M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at the Royal National Orthopædic Hospital.

WAGGETT, ERNEST, M.B., B.C. Cantab., has been appointed Surgeon to the newly constituted Department for Diseases of the Throat, Ear, and Nose at Charing Cross Hospital.

WELHAM, SIDNEY, M.R.C.S., L.R.C.P. Lond., has been appointed Resident Medical Officer at Charing Cross Hospital.

WILKINS, ERIC M., M.B. Vict., M.R.C.S., has been appointed Junior Assistant Medical Officer to the Monsall Fever Hospital, Manchester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Senior and Junior Resident Medical Officers for six months. Honorariums at rate of £20 and £10 a year respectively, with board and lodging.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80, with fees.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary £100 per annum.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES, John Bright-street, Birmingham.—Clinical Assistant. Honorarium at rate of 52 guineas per annum.

BRECKNOCK COUNTY AND BOROUGH INFIRMARY.—Resident House Surgeon, unmarried. Salary £100 per annum, with apartments, board, attendance, fire, and gas.

BURLEY-IN-WHARFEDALE, SCALEBOR PARK (PRIVATE ASYLUM).—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, attendance, &c.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with apartments, board, and laundry.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Physician, unmarried. Salary £90 a year, with board and lodging.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Resident Medical Officer. Salary £100 per annum, with board, &c. Also Physician to Out-patients. Also Surgeon Dentist.

COLCHESTER, ESSEX AND COLCHESTER GENERAL HOSPITAL.—House Physician. Salary £60 per annum, with board, washing, and residence.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon for six months, renewable. Salary £60 per annum, with rooms, board, washing, and attendance.

DEVON COUNTY ASYLUM.—Third Assistant Medical Officer. Salary £125, rising to £155 per annum.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board and lodgings.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £40 per annum, with residence, board, and washing.

FAREHAM, HANTS COUNTY ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £175 per annum, with apartments, board, washing, and attendance.

GOSFORTH, NEWCASTLE-ON-TYNE CITY ASYLUM.—Assistant Medical Officer, unmarried. Salary £140 a year, rising to £160, with apartments, board, and laundry.

HARTSHILL, STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL.—Junior House Surgeon. Salary £50 per annum, with board, apartments, and washing.

ITALIAN HOSPITAL, Queen's-square, London, W.C.—Honorary Assistant Physician.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £50 per annum, with board and residence.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Senior House Surgeon, unmarried. Salary £100 per annum, with board and residence.

MANCHESTER AND SALFORD HOSPITAL FOR SKIN DISEASES.—House Surgeon. Salary £75 per annum, with board and residence.

METROPOLITAN ASYLUMS BOARD, Downs School, Sutton, Surrey (for Children with Ringworm.—Assistant Medical Officer. Salary £260 per annum and dinner.

MILLER HOSPITAL AND ROYAL KENT DISPENSARY, Greenwich-road, S.E.—Junior Resident Medical Officer. Salary £80 per annum, with board, attendance, and washing.

NATIONAL DENTAL HOSPITAL AND COLLEGE, Great Portland-street, W.—Anæsthetist.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Assistant House Surgeon for six months, renewable. Salary at rate of £50 per annum, with board, residence, and washing.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Assistant to the Clinical Pathologist (salary £50 per annum); also Junior Obstetric Assistant and Assistant Anæsthetist. All females.

SHEFFIELD, ROYAL INFIRMARY.—Junior Assistant House Surgeon. Salary £65 per annum, with board, lodging, and washing. Also Junior House Physician. Salary £60 per annum, with board, lodging, and washing.

SHEFFIELD UNION HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with apartments, rations, &c. Also Resident Assistant Medical Officer. Salary £80 per annum, with apartments, rations, &c.

SOCIETY OF APOTHECARIES OF LONDON.—Examiner in Midwifery.

SURREY DISPENSARY, Southwark, S.E.—Resident Medical Officer. Salary £140 per annum, with apartments, coals, gas, and attendance.

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary £75 per annum, with board, apartments, washing, and attendance.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—Honorary Anæsthetist. Also Surgeon to In-patients. Also House Surgeon.

WELLS, SOMERSET AND BATH ASYLUM.—Second Assistant Medical Officer. Salary £130, rising to £150 per annum, with board, lodging, washing, and attendance.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House Surgeon, unmarried. Salary £50 per annum, with board, residence, and washing.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, 73, Welbeck-street, W.—Clinical Assistant.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Honorary Surgeon.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and apartments.

Births, Marriages, and Deaths.

BIRTHS.

GOUGH.—On April 24th, at Glenallon, Torquay, the wife of John Harley Gough, M.D., B.Sc., F.R.C.S. E., of a son.

JOHNSTON.—On April 24th, at Corstorphine House, Corstorphine, N.B., the wife of T. N. Johnston, M.B., C.M., F.R.S.E., of a daughter.

LAY.—On April 25th, at Peasenhall, Saxmundham, Suffolk, the wife of Charles E. Lay, L.R.C.P., L.R.C.S. Edin., L.M., of a daughter.

PEDLEY.—On April 22nd, at The Terrace, Tonbridge, Kent, the wife of G. A. Pedley, M.R.C.S., L.R.C.P., Lond., &c., of a son.

MARRIAGES.

ALDERSON—SURRIDALE.—On April 26th, at St. Margaret's, Ipswich, Percy Francis Alderson, Surgeon, R.N., to Kathleen Ellen Key, fifth daughter of J. Surridale, M.R.C.S., Warrington-road, Ipswich.

PATON—KIRKWOOD.—At Skelmorlie, on April 30th, by the Rev. John Hunter, D.D., Leslie Paton, M.B., F.R.C.S., of 1, Spanish-place, Manchester-square, W., to May, daughter of the late Richard Reid Kirkwood, West India Merchant.

STEELE—ROGERS.—On April 28th, at St. Peter's, Eaton-square, S.W., by the Rev. F. F. Kelly, LL.D., assisted by the Rev. the Precentor G. G. Wilkinson, Charles Francis Steele, M.B. London, M.R.C.S., L.R.C.P., eldest son of Charles Steele, M.D., of Clifton, to Anita Russell Rogers, youngest daughter of the late Edward Dresser Rogers, D.L., of Rockley, Denmark Hill. Foreign papers please copy.

THOMPSON—DAVIES.—On April 25th, at St. Paul's Church, Helsby, Peter Thompson, M.D., Professor of Anatomy, King's College, London, to Nessy, the eldest daughter of Mr. G. L. Davies, J.P., The Old Hall, Helsby, Cheshire.

THOMPSON—HOOPER.—On April 24th, at the parish church, Ripley, Derbyshire, by the Rev. E. T. Pegg, Walter Thompson, F.R.C.S. Eng., of 4, Park-square, Leeds, youngest son of the late Samuel Thompson of East Rigton, Yorkshire, to Ann Elizabeth Hooper, M.B., B.S. Lond., daughter of Marshall Hooper, J.P., of Ripley, Derbyshire.

DEATH.

BATEMAN.—On April 28th, at Woodcote, Somerset-road, Ealing, Colonel Daniel Frederick Bateman, I.M.S., in his 66th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

AN UNFORTUNATE CIRCULAR.

To the Editors of THE LANCET.

SIRS,—With reference to the paragraph in your issue of the 28th instant permit me to say that this has caused Dr. O'Connor as much annoyance as it has caused me surprise. I am entirely responsible for the circular referred to, which was issued in the interests of the tenants of St. James' Court alone, to inform them of a local advantage which tenants in a huge residential property such as this invariably expect to find and about which prospective tenants make a point of inquiring before arranging a tenancy of a flat. I cannot quite imagine why from the communication you have received alone you should criticise my circular in such a manner, my action being merely a businesslike one in the interests of the property and not in the least degree of interest to any medical body. No such arrangement had previously existed with any particular medical attendant and when it was concluded with Dr. Moyle O'Connor it was my duty at once to inform the tenants. That this is not an uncommon or unusual course the pamphlet I am sending you herewith, relating to another of the largest residential properties in London, will demonstrate to you, the name, qualifications, and previous experience of the medical attendant being fully stated in the pamphlet which is handed to every tenant and every inquirer in connexion with the property in question. No doubt in these circumstances you will do Dr. O'Connor and myself the justice to explain the true position to your readers and disabuse their minds of the erroneous impression evidently conveyed to you by a medical man who was not successful in securing this position himself.—I am, Sirs, your obedient servant,

J. MUNRO ROGER,
Resident Estate Manager, St. James' Court.

St. James' Court, Buckingham Gate, S.W., April 30th, 1906.

*** A pamphlet forwarded to us later by Mr. Munro Roger shows that Queen Anne's Mansions, Westminster, advertises for the benefit of those whom it may concern the fact that a medical man (name given) "is in residence at the mansions and his services can be obtained at any moment."—ED. L.

THE MEDICAL TERMS OF THE EPISTLE TO THE HEBREWS.

To the Editors of THE LANCET.

SIRS,—I am anxious to discover the name of the author of a monograph on "The Medical Terms in the Epistle to the Hebrews." I am under the impression that some years ago (I fancy about six) I saw the work referred to in an obituary notice of its author in your columns.

I am, Sirs, yours faithfully,
April 30th, 1906. M.D.

*** Possibly some of our readers can assist our correspondent. The resemblance between the language of the Gospel according to St. Luke and that of the Epistle to the Hebrews has been insisted upon by many writers, from Clement of Alexandria downwards.—ED. L.

AN EXHIBITION OF LEADLESS GLAZE.

AN exhibition of newest designs in leadless glazes was opened at 25, Chepstow Mansions, Chepstow-place, London, W., on May 2nd and will remain open until May 19th. We understand that considerable strides have recently been made in the introduction of pottery, both of a useful and an ornamental character, in the manufacture of which there is no danger to the workers in the dipping house of poisoning by contact with raw lead compounds.

MONSTERS.

To the Editors of THE LANCET.

SIRS,—Your correspondent "X" will find Hirst and Piersol's "Human Monstrosities" (Pentland) very useful. There is an excellent article on Teratology in Todd's "Cyclopædia of Anatomy and Physiology." Geoffrey Saint-Hilaire's book, "Histoire des Anomalies," published in 1832, is unrivalled. An interesting old work on the subject, published in 1665, is Licetus' "De Monstris."

I am, Sirs, yours faithfully,
May 1st, 1906. F.

MISS WESTON'S WORK IN THE ROYAL NAVY.

Miss Weston's work at the Sailors' Rests and elsewhere on behalf of the seamen of the Royal Navy is well known to our readers, for it has often been mentioned favourably in our columns. On Tuesday last, May 1st, the annual meeting was held at Portsmouth, when both Miss Weston and her co-trustee, Miss Wintz, were able to give a thoroughly satisfactory account of their labours to an enthusiastic audience. The success achieved during the past year was remarkable. The visit of the French fleet to Portsmouth last summer was the occasion of much hospitality at the Royal Sailors' Rest. Some thousands of French seamen were made welcome and 15,000 booklets were distributed among them. Miss Weston received a warm vote of thanks from the men and a kind letter from Admiral Caillard, the French Commander-in-Chief. The circulation of *Ashore and Afloat* remains very large; the number issued during the year was 1,434,930, an increase of 42,750 over the previous year. A new wing has been added to the Portsmouth Royal Sailors' Rest, consisting of a small hall, club and class rooms, seamen's reading rooms, and a petty officers' coffee room, costing some £5000; this wing is just about to be opened by the Naval Commander-in-Chief, Admiral Sir Archibald Douglas. The number of men sleeping at the various Sailors' Rests during the year stands at 363,703. The number of baths given was 79,610 and of meals 677,137. The receipts were £30,977 2s. 4d. All the profits were, as usual, spent for the benefit of blue-jackets, their wives, and families. The quantity of meat consumed stands at 109,008 pounds, tea 6704 pounds, eggs 374,000, and milk 20,090 gallons. Miss Weston is raising the money for a Nelson Memorial block at Portsmouth, which she hopes to commence shortly, and so to add still more to the efficiency of her work at the premier naval port.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (7th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (9th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (2 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), West-minster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (10th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.).

SATURDAY (12th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (7th).—SOCIETY OF ENGINEERS (Royal United Service Institution, Whitehall).—7.30 P.M. Paper:—Dr. D. Sommerville: The Chemistry and Bacteriology of Potable Waters.

TUESDAY (8th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Paper:—Dr. G. Rankin and Dr. H. C. Machay: Achondroplasia (with epidiascope demonstration).

MEDICO-LEGAL SOCIETY (22, Albemarle-street, W.).—8.15 P.M. Exhibition of Medico-legal Specimens. Discussion on Insanity and Murder (opened by Dr. C. Shaw). Mr. Justice Walton (President), Dr. H. Maudsley, Dr. T. S. Clouston, Dr. J. Scott, and Dr. Cowburn are expected to contribute.

WEDNESDAY (9th).—DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M. Meeting.

SOCIETY OF ARTS (John-street, Adelphi, W.C.).—8 P.M. Paper:—Prof. T. Oliver: Bridge Building by means of Caissons, including Remarks upon Compressed Air Illness.

THURSDAY (10th).—HARVEIAN SOCIETY OF LONDON (Paddington Infirmary, Harrow-road, W.).—8.30 P.M. Clinical Meeting. Cases will be shown.

BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8 P.M. Paper:—Mrs. Scharlieb: The Advantages of the Abdominal Route in Operations for Cancer of the Uterus.

FRIDAY (11th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Papers:—Mr. C. Wallace: Case of Cystic Tumour of the Spermatic Cord.—Mr. A. C. Hudson: Carcinoma of the Thyroid Gland.—Mr. E. W. Roughton: Case of Perforated Gastric Ulcer treated by Evisceration and Irrigation.—Mr. J. D. Malcolm: Complete Removal of a Multilocular Cyst of the Pancreas; Intestinal Anastomosis for Partial Obstruction 16 Days later.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (7th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Galloway: Clinique. (Skin) 5.15 P.M. Lecture:—Dr. J. R. Squire: Bronchiectasis.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—12 noon. Dr. H. Wright: Pathological Demonstration. 2.15 P.M. Medical and Surgical Clinics. 3 P.M. Dr. Hood: Demonstration in Medical Wards. 5 P.M. Dr. Russell: Cerebral Hæmorrhage and Thrombosis

CHARING CROSS HOSPITAL.—4 P.M. Dr. I. Bruce: Demonstration (Electrical). (Post-Graduate Course)

TUESDAY (8th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. G. A. Sutherland: Clinique. (Medical.) 5.15 P.M. Lecture:—Mr. H. J. Paterson: Gastric Ulcer.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinics. 5 P.M. Dr. Russell: Cerebral Hæmorrhage and Thrombosis

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Clinical Lecture:—Dr. Tooth: Neuritis.

NORTH-EAST LONDON POST GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Clinical Lecture:—Dr. H. Corner: Mental Affections of Childhood and Adolescence.

WEDNESDAY (9th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies street, W.C.).—4 P.M. Mr. P. L. Daniel: Clinique. (Surgical). 5.15 P.M. Lecture:—Dr. G. H. Savage: Eccentricity and Insanity.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinics. 5 P.M. Dr. Beddard: Practical Medicine.

UNIVERSITY COLLEGE HOSPITAL (Gower-street, W.C.).—4 P.M. Clinical Lecture:—Dr. R. Bucknall: The Diagnosis and Treatment of Tubercular Disease of the Spine.

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M. Demonstration:—Dr. D. Grant: Larynx.

THURSDAY (10th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical). 5.15 P.M. Lecture:—Mr. C. Nourse: Some Points in the Diagnosis and Treatment of Frontal Sinusitis.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinics. 4 P.M. Mr. Keetley: Demonstration in Surgical Wards. 5 P.M. Mr. Baldwin: Practical Surgery.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Lecture:—Dr. A. J. Whiting: Clinical Examination of the Blood.

CHARING CROSS HOSPITAL.—4 P.M. Mr. Wallis: Demonstration (Surgical).

FRIDAY (11th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. S. Stephenson: Clinique. (Eye).

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinics. 3 P.M. Dr. S. Taylor: Demonstration in Medical Wards. 5 P.M. Dr. Abraham: Cases of Skin Disease.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Clinical Lecture:—Dr. R. Russell: Cerebral Tumours.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and generally do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 3rd, 1906.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind	Rainfall	Solar Radiation in Vacuo	Maximum Temp. Shade	Min Temp.	Wet Bulb.	Dry Bulb.	Remarks
April 27	29·81	N.E.		105	56	35	38	43	Cloudy
,, 28	29·37	N.W.	0·25	94	52	43	44	46	Cloudy
,, 29	29·39	W.	0·02	107	52	35	38	41	Fine
,, 30	29·42	E.	0·06	75	49	37	41	43	Raining
May 1	29·65	N.	0·10	89	53	37	39	41	Cloudy
,, 2	29·73	S.		79	54	40	44	49	Cloudy
,, 3	29·78	SSW	0·08	96	59	47	49	54	Cloudy

During the week marked copies of the following news apers have been received: *Yorkshire Post, Leicester Advertiser, Manchester City News, Evening News (Portsmouth), Leamington Spa Courier, Herefordshire Mercury, Western Mail (Cardiff), Westminster Gazette, The Tribune, Liverpool Post and Mercury, Surrey Advertiser, Literary Digest (New York), Scientific American, Manchester Chronicle, Irish Times, Morning Leader, Daily News, St. Louis Medical Review (U.S.A.), Daily Chronicle, &c.*

Communications, Letters, &c., have been received from—

A.—Dr. W. W. Anderson, Chard; Mr. M. Anslow Alabone, Lond.; Rev. F. E. Austin, Raglan; Messrs. Aked and Aked, Lond.

B.—Mr. E. W. Blaslus, Lond.; Mr. S. Barwise, Derby; Dr. R. A. Bennett, Saltburn-by-the-Sea; Mrs. S. H. Beals, Ahmednagar; Sir T. Lauder Brunton, Lond.; Mr. G. Sherman Bigg, Lond.; Sir W. H. Broadbent, Lond.; Mr. A. Benthall, Lond.; Mr. F. D. Byrne, Lond.; Mr. A. O. Bisson, Lond.; Birmingham and Midland Skin Hospital, Secretary of.

C.—Mr. W. B. Clarke, Lond.; Messrs. Cassell and Co., Lond.; Committee on Industrial Education, Lond., Secretary of; Carnegie Institute of Washington, Washington, D.C., Assistant Secretary of; Mr. Martin J. Chevers, Withington; Mr. F. W. Clarke, Chorlton-cum-Hardy.

D.—Dr. Arthur Drury, Halifax; Dr. David, Salies-de-Béarn; Messrs. J. Defries and Son, Lond.; Decimal Association, Lond.; Mr. L. B. Desbleds, Alton; Devonshire Hospital, Buxton, D. C. P.; Dr. Bertrand Dawson, Lond.

E.—Dr. W. Ewart, Lond.

F.—Dr. Theodore Fisher, Sidcup; Mr. Norman W. Franks, Lond.; Mr. T. Hallett Fry, Lond.; Mr. Arthur Fagge, Lond.; Dr. N. Hay Forbes, Tunbridge Wells; Fuji-Ko, Lond., Managers of; Frederick Harris Co., Lond.

G.—Dr. Charles H. Gregory, Apiti, New Zealand; Messrs. Goodwin, Ferreira, and Co., Manchester; Glamorgan County Council, Cardiff, Clerk to the; G. L.; Guest Hospital, Dudley, Secretary of.

H.—Mr. Russell Howard, Lond.; Messrs. E. and H. Hora, Lond.; Messrs. Haasenstein and Vogler, Geneva.

I.—Institute of Chemistry of Great Britain, Registrar of; Invalid Children's Aid Association, Lond., Secretary of.

J.—Dr. G. Jefferson, Cornholme; J. W. P.; J. C. W.

K.—Messrs. Kilner Bros., Lond.; Mr. Hamid Ali Khan, Lucknow; Messrs. R. A. Knight and Co., Lond.; Mr. S. Karger, Berlin; Dr. N. Kalomiris, Alexandria.

L.—Mr. H. K. Lewis, Lond.; Messrs. Lee and Nightingale, Liverpool; Liverpool Hospital for Women, Secretary of; Mr. F. J. Lloyd, Lond.; Lecture Agency, Lond.; Lucile, Ltd., Lond., Manager of; London, Lord Mayor of.

M.—Mr. E. Mulligan, Foxford; Margate Chamber of Commerce, Secretary of; *Midland Counties Herald*, Birmingham, Manager of; Dr. J. G. Gordon Munn, Norwich; Messrs. Macmillan and Co., Lond.; Medical and Dental Defence Union of Scotland, Glasgow, Secretary of; Medical Society of Victoria, Melbourne, Hon. Treasurer of; Dr. Arthur Morris, Melbourne; Mr. B. G. A. Moynihan, Leeds; Mr. Fred W. Mott, Eastbourne; Messrs. Morrison, Ingram, and Co., Manchester; Macclesfield General Infirmary, Secretary of; *The Medical Review*, Lond.

N.—North Staffordshire Infirmary, Hartshill; Messrs. Norman, Sawyer, and Co., Cheltenham; Mr. H. Needes, Lond.; Mr. J. C. Needes, Lond.; National Dental Hospital, Lond., Secretary of.

P.—Mr. Y. J. Pentland, Edinburgh; Mr. J. E. Panioty, Calcutta; Miss Florence E. Phillips, Lond.; Mr. J. P. Park Inglis, Portsmouth; Dr. Bedford Pierce, York; Plumbers, Worshipful Company of, Lond., Clerk of; Peckham House, Lond.; Messrs. Peacock and Hadley, Lond.; Dr. D. R. Paterson, Cardiff.

Q.—Queensland, Department of Public Health, Brisbane, Secretary of; Mr. George Quick, Bournemouth.

R.—Dr. Alfred Robinson, Rotherham; Royal Sanitary Institute, Lond., Secretary of; Rotherham, Medical Officer of Health of; Royal Colleges of Physicians and Surgeons of Edinburgh and Faculty of Physicians and Surgeons of Glasgow, Glasgow, Registrar of; Royal Society, Lond., President and Council of; Messrs. Roberts and Co., Lond.; Royal College of Surgeons of England, Lond., Secretary of; Royal Albert Edward Infirmary, Wigan, Secretary of; Messrs. Reynolds and Branson, Leeds; Royal College of Surgeons in Ireland, Dublin, Registrar of; Dr. Nathan Raw, Liverpool.

S.—Mr. J. R. R. Stephens, Lond.; Messrs. G. Street and Co., Lond.; Dr. Geo. A. Sutherland, Lond.; Mr. James Sandham, Newcastle-on-Tyne; Dr. E. L. Spriggs, Lond.; Dr. Kenneth Scott, Cairo; Messrs. Squire and Sons, Lond.; Messrs. Smith, Elder, and Co., Lond.; Messrs. W. H. Smith and Son, Manchester; Somerset and Bath Asylum, Bath, Clerk to the; Mr. N. L. Usher Somers, West Bromwich; Scarborough, Medical Officer of Health of; Society for the Study of Disease in Children, Lond., Hon. Secretary of; Mr. T. Stone, Axminster; Sheffield Union, Clerk to the; Scholastic, Clerical, &c., Association, Lond.; Dr. D. W. Samways, Mentone; Mr. H. Sturmey, Coventry.

T.—Dr. T. M. Tate, Downpatrick; Dr. A. J. J. Triado, Lawlers, Australia; Baron Takaki, Lond.; Dr. John H. Teacher, Glasgow; Tunbridge Wells Charity Organisation Society; Taunton and Somerset Hospital, Secretary of.

W.—Mr. B. Wheeler, Manchester; West Bromwich District Hospital, Secretary of; Dr. J. Scott Willock, Allegheny, U.S.A.; Dr. Chalmers Watson, Edinburgh; Westminster, Medical Officer of Health of; Messrs. H. Wilson and Son, Lond.; Dr. Tucker Wise, Montreux; Mr. Edward Ward, Leeds.

X.—X. Y. Z.

Letters, each with enclosure, are also acknowledged from—

A.—Dr. T. Addis, Gloucester; Mr. E. A. Arnold, Lond.; St. Andrew's Hospital, Northampton; Apollinaris Co., Lond.; Messrs. Allen and Hanburys, Lond.; A. T. G.

B.—Mr. S. H. Benson, Lond.; Dr. N. J. Blaney, Maryborough; Blackheath-road (43), S.E.; Mr. W. H. Berry, Lond.; B. L. P.; Dr. G. B. Buchanan, Glasgow; Mr. R. Heather Bigg, Lond.; Messrs. Bedford and Co., Lond.; *Birmingham Daily Post*, Manager of; Mrs. K. Behnke, Lond.; B. W.

C.—Dr. T. Carruthers, Kilbarchan; Miss C. Chisholm, Bingley; Mrs. Cotton, Edrom; C. A. C.; C. L.; Messrs. Carnrick and Co., Lond.; Cumberland Infirmary, Carlisle, Secretary of; Dr. W. Cowie, Charlton; Messrs. J. A. Carveth and Co., Toronto; Cardiff Infirmary, Secretary of.

D.—Dr. F. W. Dougherty, Yonkers, U.S.A.; Mr. R. Darke, Lond.; Messrs. J. T. Davenport and Co., Lond.; Mr. P. Ditchburn, Crook.

E.—Messrs. Evans and Wormull, Lond.; E. B., Luton.

F.—Dr. G. W. Francis, Tunstall; Messrs. Ferris and Co., Bristol; Messrs. Fussell and Co., Lond.; Mr. W. E. Franklin, Newcastle-on-Tyne; F. W. B.

G.—Mr. W. R. Gray, Exeter; Dr. W. H. Gilbert, Baden Baden; Messrs. Gordon and Gotch, Lond.; Dr. R. Griffith, Netherton; Messrs. Guyot, Guenin, and Son, Lond.; Messrs. C. Griffin and Co., Lond.; Messrs. R. W. Greeff and Co., Lond.; Messrs. Gilyard Bros., Bradford; General Life Assurance Co., Lond., Secretary of.

H.—Dr. A. G. Heron, Dromara; Messrs. Hirschfeld Bros., Lond.; Mr. J. Hutchinson (jun.), Lond.; Messrs. Hogg and Son, Lond.; Messrs. Hooper and Co., Lond.

I.—Ingham Infirmary, South Shields, Secretary of.

J.—Staff-Surgeon A. H. Jeremy, R.N., Lond.; Messrs. J. T. Jameson and Co., Dublin; J. M.; J. H., Lond.

K.—K. W. J.

L.—Dr. C. Lloyd, Simla; Mr. H. Littlewood, Leeds; Messrs. Lee and Martin, Birmingham.

M.—Dr. H. J. May, Southampton; Manchester Corporation, Treasurer of; Manchester Victoria Jewish Hospital, Secretary of; Messrs. Möller and Hull, Manchester; Mr. J. Murray, Lond.; Mr. R. W. Marshall, Manchester; Messrs. Macintyre Bros., and Co., Lond.; Dr. H. Mackay, Coundon; Maltine Manufacturing Co., Lond.; Mr. R. Mosse, Berlin; Manchester Royal Infirmary, Secretary of; Messrs. H. H. Markwald and Co., Lond.; Messrs. C. Mitchell and Co., Lond.; Manhu Food Co., Liverpool; Mr. E. Merck, Lond.; Medicus, Reading.

N.—Nurse, Lond.

O.—Mr. J. F. O'Mahoney, Kilcrohane; Messrs. Orridge and Co., Lond.; Oxford County Asylum, Littlemore, Clerk of.

P.—Mr. D. Paton, Lond.; P. H. S.; Dr. C. E. Purslow, Birmingham; Paddington Guardians, Clerk to the; Mr. J. Pond, Norwich; Messrs. C. Pool and Co., Lond.; Dr. F. C. Palmer, Alverstoke.

R.—Mr. R. Redpath, Newcastle-on-Tyne; Royal Albert Asylum, Lancaster, Clerk of; Messrs. Raimes and Co., York; Mr. J. W. Rodgers, Lond.; Mr. J. W. Roberts, Knayton; R. F. S.; Messrs. Robinson and Sons, Chesterfield; Miss R.

S.—Dr. A. W. F. Sayres, Exeter; Messrs. T. and H. Smith, Edinburgh; S. D. S.; Sanatorium des Pins, Lamotte-Bouvron; Messrs. Spiers and Pond, Lond.; Sanitary Publishing Co., Lond.; Messrs. Speyer and Peters, Berlin; Dr. W. J. Shaw, Watton; Dr. J. Barker Smith, Lond.; St. George's Hospital Medical School, Lond., Secretary of; *Sheffield Independent*, Manager of; Mr. F. B. Sawbridge, Lond.; Messrs. Spencer and Co., Lond.; Messrs. W. B. Saunders and Co., Lond.; Smith's Advertising Agency, Lond.

T.—Dr. J. B. Tombleson, Tyne; Dr. C. Bell Taylor, Nottingham; Mr. E. F. Thomas, Pontllanfraith; T. K. S.; Mr. J. H. Thomas, Sheffield.

W.—Mr. H. Wallis, Babbacombe; Mr. J. A. Wood, Shepshed; Warneford Hospital, Oxford, Medical Superintendent of; Messrs. Watkins and Osmond, Lond.; W. C.; W. M. K.; Messrs. W. Wood and Co., New York; Messrs. A. J. Wilson and Co., Lond.; West Kent General Hospital, Maidstone, Secretary of; W. E. T.; Mr. T. C. Winn, Lond.

EVERY FRIDAY.

THE LANCET.

PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements and Situations Vacant	Ditto	0 4 6
	Every additional Line	0 0 6

Situations wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d.
Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapts, Asnières, Paris.